ABSTRACTS AUTHOR INDEX

The figures refer to Abstract numbers

Abadie-Maumert, F. A., 1749
Abbott, M. D., 1614
Achauer, C. W., 965
Ackermann, R. H., 909
Ackroyd, G. C., 1695
Adam, R., 1903
Adams, C. L., 1372
Adams, E., 1250, 1923
Adams, N. R., 1049
Agnew, A. F., 503, 1094
Ainsworth, R. W., 1363
Aitken, D. F., 1875
Alba, P., 1565
Albers, W., 794
Albert, P., 1768
Albiol, F., 1310
Albright, L. F., 775
Alexander, B. J., 1100
Alexander, L., 1142
Alexander, P. A., 801
Alger, R. P., 193, 1262, 1823
Allen, H. H., 891
Allred, R. C., 402
Ammann, C. B., 1814
Arnott, E., 196
Anderson, A. E., 520
Anderson, C. C., 62
Anderson, R. Y., 668
Andreatch, A. J., 1675
Andrichuk, J. M., 337
Andrussow, L., 264, 1717
Angel, R. R., 1808
Ansdale, R. F., 1361
Apostolescu, V., 161
Appert, J., 51
Archard, J. F., 280
Arend, A. G., 472
Arich, G., 638
Aries, R. S., 467
Armor, W. G., 466
Arnaud, J., 1443
Arnesen, T., 1475
Arnold, J. W., 1540
Aschenbrenner, B. C., 965
Ashford, F., Jr., 82
Ashley, J. R., 421
Ashley, W. H., 988
Ashton, A. E., 1140
Assiter, E. J., 1083
Atkinson, O. C., 1432
Atteridg, P. T., 1605
Atwater, G. I., 328
Aufauvre, C., 575
Augustin, J. U., 1194
Aulagnier, J., 575
Auricoste, J., 1637
Austen, A. E., 827, 1740
Austin, B. K., 28
Austin, H. C., 1257
Aynard, —, 857
Azimi-Pour, H., 1646

Baars, J. H., 1160
Backus, M. M., 1400
Bacon, F. T., 1519
Baerlecken, E., 129
Bailey, E. H., 509
Bailey, H. R., 192
Baker, A. A., 1265
Ballard, W. T., 1042
Ballmer, R. W., 1479
Ballou, J. K., 1732
Banas, H., 1244
Banerjee, D. D., 1509
Banerjee, D. K., 1509
Baptist, O. C., 893
Baranov, V., 352
Barbaro, J., 1306
Barbouteau, L., 1682
Barclay-Smith, P., 490, 564
Barfield, E. C., 400
Barnard, P., 712
Barnes, W. J., 804
Baron, G., 617, 1231
Barret, W. M., 166
Barrett, J. P., 52
Barrett, M. L., Jr., 229
Barthalon, M., 1738
Bartlett, S. C., 1508
Bartoszek, A., 1299
Basore, C. A., 1860
Bassalert, J. L., 1668
Bates, E. S., 279
Bath, L., 864
Batique, G., 1698
Baugh, E. G., 1274
Bauman, W. E., 1444
Baxa, J., 1897
Baxter, A. D., 259
Bazett, P. S., 41
Bean, H. P., 560
Beaufranc, Y., 1718
Becker, F. L., 515
Becker, F. S., 1891
Becker, G. E., 1724
Bednarz, L., 1306
Beeson, C. M., 205, 395
Beeson, D. M., 380
Belden, D. H., 1049
Belknap, W. B., 511
Bell, F. W., 1485
Bell, J. D., 1058
Bell, W. T., 1815
Bellanger, G., 1652
Belonos, S. P., 555
Beltrame, P., 938
Beneo, E., 162, 345
Bennett, E. O., 1210
Bennett, R. J., 1053
Benther, H., 1611
Berg, D., 127, 598
Berlin-Rolleau, J., 314
Bernard, G. G., 1118
Bernelin, B., 817, 1324
Bernstein, F., 859
Berry, J. E., 709
Berry, V. J., 528, 1835
Berryhill, H. L., Jr, 972
Bettes, R. S., 1319, 1341
Beuther, H., 248, 1163
Beyer, M., 1666
Beynon, L. R., 945
Bhattacharya, S. N., 116
Bienner, F., 354
Biernat, Z., 1494
Biggs, W. P., 978
Bike, P. B., 175, 215, 499, 675, 1452, 1453
Billmeier, R. A., 635
Billon, P., 454
Bingham, W. E., 45, 1261, 1107
Birthler, R., 1615
Bizal, R. B., 86, 1467
Blair, C. M., 1328
Blanpied, B. W., 120, 1538
Bleakley, W. B., 206, 866, 1114, 1803, 1820
Bloch, O., 845
Blodgett, R. B., 612, 1508
Bloor, J. E., 437
Blott, J. F. T., 1694
Blouri, B., 1711
Blumenberg, H. K., 221
Blundell, N. F., 139, 232
Bodola, J. R., 1503
Boelhouwer, C., 581, 595, 1169
Boer, H., 1642
Bogart, L. E., 152
Bogart, M. J. P., 582
Boggs, H. D., 1733
Boice, E. G., 1542
Bois, P., 1401
Boisard, P., 876
Bokhoven, C., 1656
Bollman, W., 1507
Bolton, F. H., 773
Bond, R. L., 296
Bonini, W. E., 1091
Bonnell, W. S., 1478
Bonsall, J. G., 1410, 1555, 1791
Boon, E. F., 753
Bordat, L. G., 64
Borham, M. A., 1748
Borlera, M. L., 1178
Bornhauser, M., 1236
Borrey, F., 312
Bose, S. K., 433
Boskov-Stajner, Z., 1379
Bottenberg, K. C., 925
Bouraly, P., 927
Bowen, J. E., 447
Bowie, W. H., 188
Bowser, W. L., 121
Boyd, M. C., 1445, 1562
Boyd, M. L., 939–40
Bozeman, H. C., 1883
Bradbury, J. T., 772
Brainerd, H. A., 1638
Brandes, G., 452, 611
Brandt, G. W., 1252
Brant, G. S., 1624
Brantly, M. M., 47
Bray, B. G., 774
Brechtel, F. C., 1765
Briant, J., 1324
Briggs, D. H., 1603
Brigham, W. E., 1821
Brinkley, T. W., 190
Brinkmann, K., 1906
Broding, R. A., 348
Brodylo, S., 66
Brooks, K. W., 589
Broussard, W. F., 1277
Brown, A. M., 239
Brown, C. W., 1177
Brown, H. G., 152
Brown, K. E., 703, 923
Brown, K. M., 106
Brown, W. B., III, 1129
Browning, W. C., 182
Brull, H., 304
Brun, —, 265
Brundage, H. T., 500, 1128, 1563
Brüning, K., 1683
Bryers, R. W., 1691
Buchanan, R. S., 407
Büchler, H., 1323
Buckingham, P. A., 1495
Bultzo, C., 96
Burdyn, R. F., 697
Burgess, R. J., 1759
Burnett, C. M., 1090
Burnett, R. R., 1471, 1590
Burnham, H. D., 1672
Burns, J. A., 1478
Burow, F. H., 1333
Burwell, R. L., Jr, 1648
Busch, D. A., 496
Büscher, K. E., 1907
Buskel, C., 432
Buthod, A. B., 761
Butler, L. H., 1346
Buttin, R., 72, 141
Buty, —, 265
Buty, M. L., 1917

Cabella, A., 1161
Caddock, B. D., 609, 796
Cadle, A., 959
Caimi, U., 1679
Calcott, A. R. E., 1292
Callaway, F. H., 731
Callear, A. B., 593
Cameron, A., 1171–2
Cameron, J. S., 1283
Campbell, J. M., 1834
Campbell, R. B., 1894
Campise, N. O., 37, 987
Canalizo, C. R., 703
Cannon, M. R., 1058
Cardwell, W. J., 705
Cardwell, W. T., 717
Carlson, R. G., 1731
Carlson, R. H., 88
Carpenter, C. W., 1014
Carra, S., 938
Carter, G., 33
Cate, R. B., Jr, 1234
Caudle, B. H., 900
Chadderdon, J., 516
Chadwick, W. L., 1217
Charon, A., 218
Chastain, J., 1806
Chasteen, K., 739
Chatenever, A., 195
Chave, K. E., 1087
Cheetham, A., 1293
Cheetham, A. H., 964
Chen, C-T., 249
Chetin, A. K., 852
Chiampo, P., 953
Chilingar, G. V., 667
Chisholm, P., 1407, 1799
Choffé, B., 601, 1654
Chueca, A., 877, 901
Chuoke, R. L., 530
Clanton, J. L., 724
Clarac, E., 1564
Clark, G. H., 126
Clark, K. A., 1440
Cliquet, M., 1654
Coats, K. H., 536, 863
Cobb, J. R., 756
Cobban, W. A., 507
Coburn, R. W., 370
Cochrane, G. W., 665
Coggleshall, N. D., 115
Cojan, N-Y., 810
Cokinos, G. P., 1002
Cole, F. W., 1567
Cole, S. L., 759
Coleman, E. H., 1362
Collins, A. G., 442
Collins, B. J., 1412
Collins, J., 1155
Collins, J. M., 659
Collins, L. E., 1406
Collins, R. E., 391
Collins, W. F., 643
Colton, G. W., 497
Coney, F. R., 899
Conkling, R. L., 1022
Connally, H. T., 430
Connell, H. R., 487
Conrad, A. L., 446, 573
Cook, J. E., 1610
Cook, R. E., 63
Corley, C. B., Jr, 397
Cornebize, L., 579
Cornelissen, J., 616, 792
Cornell, D., 394
Cornish, R. M., 606
Corrales, J. A., 820
Costantinides, G., 638
Costanzo, F. E., 1211
Coste, M., 73
Courtel, R., 1347
Coussemant, F., 585, 785
Coussy, B., 1609
Cowan, J. C., 38, 366
Cowell, W. D., 74
Cox, R. P., 1605
Coy, E. W., 829
Cozdenmat, J., 578
Crable, G. F., 118
Craig, F. F., 1422
Craig, R. W., 1110
Crake, W. S., 357, 865
Cranston, R. W., 945
Crawford, G. W., 884, 886, 912
Crawford, P. B., 382, 492, 538, 889
Crisp, A. E., 1870
Crittendon, B. C., 707
Crocco, L., 261
Croley, L. B., 1302, 1513
Cronan, C. S., 764, 768–9
Crosthwaite, C. N., 322
Crow, R. D., 1032
Crowell, J. C., 321
Crowley, M. J., 91
Culley, J. C., 1925
Cullinan, T. A., 150, 330
Culver, R. C., 1006
Cunningham, R. A., 1783
Cunningham, R. G., 816
Cupps, C. Q., 895
Curphey, E. G., 291
Curtis, D. M., 1235

Dabney, M. J., 478
Dakin, T. W., 127, 598
Dalrymple, R. S., 176
Dalton, R. L., 1014
Dardaganian, S. G., 724
Darin, S. R., 1273
Darling, R. F., 469
Darveniza, M., 1313
Davenport, C. H., 1625
Davenport, T. C., 1501
Davidson, D. A., 126
Davies, E. B., 1190
Davies, J. A., 101, 245, 427, 934, 1308, 1600
Davies, J. E., 1641
Davies, P. L., 609, 796
Davis, D. S., 841, 1054
Davis, G. T., 888
Davis, R. S., 839
Davis, R. W., 555
Davis, T. T., 98
Davis, W. B., 271
Davison, K., 911
Dawson-Grove, G. E., 377
Deal, C. H., Jr, 781
Decker, F., 1866
Decker, H., 1282
Decker, R. R., 1473
de Dives, J. G., 548
de Faro Barros, A., 1064
de Fournas, J., 882
de Frank, P., 1423
de Jekhowsky, B., 3, 160
de Jong, J. J., 244
de Jonge, E., 1160

de la Brunière, P., 1681
Delacour, J., 878, 1424
de Lapparent, C., 1768
Delaunay, Y., 1041
Delbende, P., 289
Delbourg, P., 1183
Delclaud, C., 157, 1840
Delmau, J-J., 604
de Lury, J., 806
de Monye, G., 733, 1558
Denekas, M. O., 888
Dengo, G., 1241
Dennison, A. T., 1084
de Pugh, D. G., 81
de Radzitzky, P., 1157
de Ratuld, J., 1747
de Saint-Vincent, A., 627
Desbrandes, R., 350, 1263, 1325
Destanque, C., 622
Desty, D. H., 269, 460, 462
de Vries, J. E., 444
Dew, J. N., 1821
de Witt, W., Jr, 497
Dickerson, L. R., 884, 912
Dickinson, E. J., 1350
Dickinson, R. R., 936
Dickmann, E., 200
Dieunegard, M., 867, 1442
Dijkstra, A., 1656
Dimarzio, E., 1161
Dimbat, M., 620
Dittrich, W., 1704, 1904
Dodson, C. R., 1518
Doelp, L. C., 1688
Doering, W. E., 132
Doh, C. A., 193
Doll-Steinberg, A., 307
Donnan, B. C., 1532
Dorsey, J. W., 1013
Douglas, D. L., 123
Douglas, J., 723
Doumenach, M., 1887
Downs, H. F., 35, 1787
Drake, R. W., 1266
Drake, R. W., Jr, 726
Drehman, L. E., 1620
Dryer, S. R. C., 1173
Dualline, C. M., Jr, 1606
Dubrisay, R., 1651
Ducommun, J. C., 1658
Dumay, H., 1609
Dunlap, I. R., 697
Dunlop, P. M., 996
Dunlop, R. G., 1219
Dunning, H. N., 59, 380, 1270, 1341
Dupas, R., 958
Dupuis, J. L., 471
Durand, J. G., 1521
Durandet, J., 788
Durant, J. B., 944
Dyes, A. B., 880
Dyson, A., 1064

Eakin, B. E., 449
Eargle, D. H., 325, 1089
Earl, J. F., 860, 1247
Easton, C. L., 1512
Eckhardt, F., 1640
Eckles, W. W., 907
Edgar, J. L., 475
Edmister, W. C., 143, 318, 594, 847, 963
Edwards, E. D., 277
Edwards, J. A., 1634
Edwards, J. M., 904
Eggert, R. J., 1223
Eggertsen, F. T., 1671
Ehrenfeld, R. L., 1697
Eich, E. D., 1705, 1708–9
Eichhoff, H-J., 451
Einsel, G., 417
Eischens, R. P., 1650
Elenbaas, J. R., 87
Elkins, L. F., 384
Ellemberger, A. R., 399
Ellington, R. T., 230, 267, 449, 1862
Elliott, J. K., 387
Elliott, J. S., 277
Ellis, D. A., 1607
Ellis, S. R. M., 1053
Ells, G. D., 11
Elston, W. E., 669
Eltinge, L., 944
Elwell, R., 276
Enos, D. C., 1929
Enright, R. J., 866, 1839
Epstejn, G. I., 1246
Erbar, F. H., 100
Erbar, J. H., 571
Erentoz, C., 155
Ermanis, L., 1332
Esser, K., 1174
Estavoyer, M., 1719
Etienne, J., 1520
Evans, H. P., 1303
Evans, J. K., 446, 573

Fabrizio, F. A., 457
Fails, J. C., 1881
Fairman, L., 302
Fairtlough, G. H., 1202
Farrar, G. L., 112
Fatt, I., 710, 902
Faulkner, C. S., 1310
Favre, B., 858, 1403
Favre, J., 617
Fayers, F. J., 194, 715–16
Featherston, A. B., 48
Feick, G., 1705, 1708–9
Feinland, R., 1675
Fekete, Z., 240
Fellous, J. R., 813
Felsenthal, M., 708
Ferguson, T. A., 234, 562
Ferguson, W., 1584
Ferrell, H., 1816
Fiega, M., 1408
Fielder, R. S., 799
Fields, R. E., 463, 910
Finch, D., 297
Fitch, J. L., 714
Fithian, E. J., 80
Fitkin, W. W., 852
Fiumara, A., 1159, 1481
Flaherty, R., 24
Flanders, R. L., 1047
Flanigan, O., 422
Flatt, H. J., 513
Flavian, C., 809
Fleszar, B., 1368
Fletcher, E. A., 831
Fletcher, O. M., 1588
Flinn, R. A., 1163, 1611
Floyd, C. M., 473
Fognani, F., 597
Folkins, H. O., 1622
Folks, J. H., 1450
Fong, G., 971
Forgotson, J. M., Jr, 666
Forman, McL. J., 328
Fortier, Y. O., 15
Foster, H. H., 831
Fothergill, C. A., 69, 405, 1126, 1857
Fouchier, J., 494
Fourmentraux, J., 855, 1396
Fourroux, M. M., 1166
Fowler, B. T., 1903
Fowler, J., 991
Francis, A. W., 721
Franck, H-G., 805, 1201, 1351
Franks, B. L., 720
Fraser, D. S., 142, 584
Fraser, J. M., 1899
Fredericks, E. M., 620
Frederickson, A. F., 1088
Freitag, R., 1516
Freudzel, D. J., 1144
Friedman, B. S., 778
Frossard, A. F., 1723
Fry, J., 895
Füchtbauer, H., 344
Fuller, M. E., 140
Fulton, C. L., 358, 521
Funk, E. E., 1421
Fusari, L., 1676

Gabriel, A., 1752
Gageonnet, R., 158
Gaines, G. L., Jr, 438
Gakner, A., 1144
Galeener, L. H., 27
Galkin, L. A., 1253–4
Gallup, W. B., 1136, 1458
Gambill, M., 952
Gardner, F. J., 148–9, 332, 504–5, 670, 736, 738, 741, 1093, 1095, 1097, 1127, 1133, 1135, 1529, 1762–3, 1847–9
Gardner, G. H. F., 1276
Garnier, A. J., 690
Gartside, S., 437
Garwood, R. F., 255
Garwood, W. E., 782
Gaskell, T. F., 1853
Gassett, P. L., 1232
Gatlin, C., 1105, 1414, 1437
Gault, H., 1711
Gavitt, D., 1931
Geneslay, R., 360
Geoffray, C., 1725
George, H. H., 228
Gerbeaux, H., 1750
Geschelin, J., 1514
Ghosh, A. M. N., 159
Giampaoli, A., 1725
Gibbon, A., 1137
Gibson, D. A., 838
Gibson, R., 651
Gierlaszynska, S., 183, 1255
Gil, R. G., 1098
Gil-Av, E., 1621, 1626
Gilbert, R. J. H., 1046, 1596, 1613
Girard, J. G., 1047
Giraud, A., 958
Giraud-Desjuzeur, M. D., 1879
Girelli, A., 1191
Girzejowski, J., 1449
Gladel, Y. L., 601, 623–5, 788
Glaister, R. P., 1389
Glanville, C. R., 393
Glavinic, D., 549
Glover, J. A., 899
Gobron, —, 556
Goebel, E. D., 1130, 1384
Goeken, R. J., 990
Goetze, R., 960
Goins, W. C., Jr, 874, 1428, 1544–5, 1796, 1828
Goldup, A., 462
Gollin, G. J., 1696
Gondermann, H., 800
Gönnel, F., 1200
Goodson, W. C., 392, 848, 1374
Goodwin, R. J., 514–15
Goolsbee, J. A., 1630
Gordon, A. S., 260
Gordon, E., 559
Gordon, K. F., 101, 245, 427, 934, 1308, 1600
Gorski, L., 1482
Gould, D. B., 1765
Govier, G. W., 1439
Graham, J. J., 1364
Graham, J. W., 890
Grammont, P., 1747
Granier, A., 881
Granier, M. A., 386
Grant, H. K., 65
Graves, R. H., 367, 1248
Gravis, C. K., 701, 1277
Gray, G. R., 1252
Grayson, J. F., 1376
Green, D. W., 1834
Greenfeld, H., 286
Greenwell, H. E., 1734
Gregath, J. R., 359, 1539
Gregorowicz, Z., 1338
Gries, J. P., 1094
Griffin, F. D., 1268
Griffin, R. R., 1412
Grifling, M. E., 1059
Grignon-Dumoulin, A., 580
Grimes, M. D., 1330
Grindrod, J., 637
Groennings, S., 1671
Gross-Gronomski, L., 130
Grossman, A., 1482
Grovenburg, W. W., 385
Grunberg, L., 1894
Guénoche, H., 793, 1647
Guerpillon, H., 785
Guerrero, E. T., 654
Guilleux, L., 1043
Guinn, D., 42
Gulz, G., 1716
Gumulczynski, J., 183, 1255
Guynes, G. J., 1210

Haag, A. D., 1505
Haag, W. O., 249
Hachenberg, H., 1182
Haddenhorst, H-G., 1669
Haden, V. G. J., 1506
Haenni, E. O., 1707
Hager, D. S., 1090
Hajek, J. D., 1876
Hakeman, J. W., 1809
Hala, S., 453
Halaunbrenner, J. B., 281
Halbouty, M. T., 147
Hall, M. A., 1707
Hall, W. H., 367
Hall, W. L., 1248
Hamilton, R. G., 1570
Hammer, O., 522
Haneef, M., 1409
Hansen, O. A., 652
Hansen, W. P., 1928
Hansford, R. C., 1617
Hanson, D. E., 502
Harbert, L. L., 541
Harbour, R. J., 107
Harbourn, C. L. A., 460
Hardie, D. J., 99
Hardin, G. C., Jr, 147
Harding, R. W., 146
Hardy, L. L., 49, 1420
Harlton, B. H., 960
Harper, G. M., 898
Harris, H. D., 335
Harris, H. I., 681
Harris, S. E., Jr, 495
Harris, W. D., 1881
Harris, W. J., 1589
Harsham, P., 408
Hart, H. M., 926
Hartland, K., 1782
Hartley, R. S., 1060
Hartsook, E. A., 1115
Haszeldine, R. N., 1489
Hatfield, R. F., 1423
Hausser, H., 1181
Hautcoeur, J. L., 1402
Havenaar, I., 184
Hawthorne, R. G., 1419
Hay, D. G., 1180
Haycock, E. W., 1726
Haye, E. F., 1086
Hayes, A. H., 1472
Hayes, P. T., 9
Hazard, H. R., 811
Heaberlin, C. L., 1899
Headlee, A. J. W., 1238, 1575
Heard, T. C., 1168
Hebert, F. E., 777
Hedde, M., 1081
Hegarty, A., 1927
Hegwer, J. S., 996
Heighes, J., 1073
Heinemann, H., 840
Heinze, H-O., 1640
Held, F., 1323
Hellendoorn, G., 1160
Hellin, M., 585, 785
Hempel, F., 1348
Henderson, G., 677
Henderson, H., 860
Henderson, J. H., 994
Hendrickson, A. R., 997
Hendrickson, J. F., 1546
Henmann, J. R., 608
Hennig, H., 1622
Hepp, H. J., 1620
Herrmann, R. A., 1056
Herthel, E. C., 767
Heselgrave, P. W., 1870
Heuer, G. J., 897
Heumann, J. R., 1011
Hewes, F. W., 1720
Heybrun, E. B., 1530
Hibbert, D. L., 1853
Hicks, A. L., 388
Heistand, T. C., 1233
Higginbottom, W. J., 255
Higgins, R. V., 1569
Hill, H. J., 520
Hilling, H., 1230
Hillsman, J. M., 1050
Hincky, J., 1203
Hippensteel, R. L., 932
Hitchcock, N. E. F., 277
Hitchon, B., 320
Hoberg, H., 1170
Hobson, B. C., 1060
Hodgson, G. W., 320
Hoekstra, G. B., 591, 786
Hoffmann, F., 220
Hoffmeister, W. S., 1085
Hofman, Ch. A., 1184
Holben, J. H., 399
Holbert, D. R., 58, 1568
Holbrook, G. W., 187
Holbrook, O. C., 1118
Holcomb, R. A., 1155
Holl, A., 1702
Hollingsworth, B. J., 607
Holm, L. W., 730
Holst, J. J., 1671
Holstein, W. K., 30
Holt, T., 1701
Hood, R. J., 935
Hoogendonk, W. P., 1674
Hoogendoorn, C. J., 241
Hoot, C., 10
Hoppe, A., 250
Hopwood, P. H., 1208
Horn, O., 1182
Horne, W. A., 1619
Horner, R. F., 941
Horner, W. L., 398
Hose, R. K., 13
Hosking, D. E. M., 1695
Hossin, A., 1812–13
Hough, E. W., 897
Houpeurt, A., 875, 1434
Hoverath, A., 1335
Howard, G. C., 1784
Howarth, H. M., 1874
Howe, H. J., 326
Hubmann, O., 1339
Huffman, G. G., 333
Hughes, F., 1908
Hughes, M. A., 621
Huitt, J. L., 1273, 1438
Hull, R. J., 572
Hungerford, T., 748
Hungerford, T. E., 187
Hunter, W. L., 1294
Huppes, N., 244
Hurd, B. G., 714
Hurst, R. E., 997
Husock, B., 1735
Hutchinson, C. A., Jr, 5
Hutchinson, T. S., 525

Hutchinson, W. A., 1213
Hutchison, T. B., 413

Idleman, J. A., 459
Illingworth, F., 1371
Illingworth, R. H., 560
Im, J. K., 784
Imlay, R. W., 508
Indra, M. K., 195
Ingerson, H. D., 466
Ingold, K. U., 436, 844
Ioannesyan, R. A., 43
Irvine, V. C., 1660
Irwin, F. P., 924
Irwin, W. P., 509
Isenberg, D. L., 1210
Ishida, K., 441
Ittem, H., 4
Ives, R. E., 11
Iyengar, M. S., 1509

Jackson, G., 1541
Jackson, P. J., 799
Jacobi, H. D., 1039
Jacobsen, L., 331
Jacoby, R. H., 528
Jacons, R. B., 482
Jacquier, R., 1655
Janssen, C., 300
Janzen, G. J., 1270
Jardine, D., 1579
Jarrell, L. C., 1237
Jarvis, P. C., 941
Jeffreys, G. V., 1055
Jenkins, R. E., 39
Jennings, H. Y., Jr, 1556
Jessen, F. W., 862, 871, 923
Jewett, J. M., 850
Jobe, R. G., 567
Johansen, R. T., 59
Johnson, G. W., 298
Johnson, H. C., 387
Johnson, H. M., 365, 524
Johnson, J. F., 461
Johnson, R. C., 1636
Johnson, T. E., 826
Jones, A. D., 976
Jones, B., 1830, 1832
Jones, C. J., Jr, 1566
Jones, E. K., 1048
Jones, G. K., 872, 984
Jones, J. T., 1502
Jones, R. E., 178
Jones, W. B., 1525
Jones-Parra, J., 199
Jordan, J. K., 400
Jucha, S., 1398
Judah, M. A., 81
Judd, S. H., 1661
Jung, R. A., 1108
Just, H., 200
Justen, J. J., 1272

Kaczmarski, C., 1367
Kahle, L. F., 550
Kaiser, L., 1599
Kalinske, A. A., 565
Kalwa, G., 129
Karasek, F. W., 1166
Kariby, H., 435, 725
Karnkowski, P., 1279, 1397
Kastner, D., 1602
Katz, D. L., 87, 536, 863
Kaufman, H. R., 619
Kaufman, J. E., 928, 1033
Kauppi, T. A., 1913
Kearns, G. L., 118
Kehn, D. M., 116
Kelly, C. I., 226, 553, 750, 1861
Kemp, W. E., 1736
Kendall, N., 615
Kennedy, H. J., 724
Kepler, F. M., 1891
Kermarrec, F. J., 633
Kern, L. R., 527
Kerns, G. D., 1045
Kessler, M. M., 837
Ketchian, S., 1263
Kieschnick, W. F., Jr, 61
King, E. R., 498
King, G. R., 355
King, R. W., 1490
Kinney, G., 1585
Kinney, G. T., 1922
Kirby, J. E., 1006
Kirk, E., 190
Kirkland, D. W., 668
Kirkpatrick, C. V., 1079
Kirsch, F. W., 840
Kleppinger, K. B., 385
Klikoff, W. G., 710
Klinkenberg, A., 955
Klinkenberg, L. J., 836
Klinkert, H. G., 957
Klohn, C. H., 1298, 1470
Knauff, H. W., 1911
Knegtel, J. F., 1164
Kniebes, D. U., 230, 803, 824
Knight, L., 667
Knight, W. N. N., 1596, 1613
Knoble, W. S., 777
Knopp, C. R., 999
Knox, D. G., 205, 395
Knox, E. J., 29
Knutson, C. F., 899
Koch, R., 1669
Koel, I. C., 1040
Koeller, R. C., 528
Koenecke, D. F., 478
Koepf, E. H., 185
Koester, E. A., 1242
Kohl, A. L., 1495
Kolb, R. H., 998
Kolombo, M., 634, 1493
Kolupaila, S., 1889
Koppenhofer, R. L., 1867
Korn, F., 1872
Kornfeld, J. A., 678, 966, 1243, 1760
Kotlarczyk, J., 1398
Kotter, E., 1710, 1910
Kovach, S. M., 778
Kowalski, G., 1311, 1315
Krahn, G. A., 861
Krenkler, K., 288, 1068, 1198
Kröger, C., 800
Kucinski, T., 164
Kufus, H. B., 719
Kulik, M. D., 1623
Kume, A., 1628
Kunetz, G., 352
Kuntz, L. E., 111, 401
Kurata, F., 784
Kurtz, S. S., Jr, 1490
Kust, M. A., 1490
Kwaciszewska, A., 210–11
Kyte, J. R., 195

Laan, B., 1930
Labine, R. A., 755, 807–8
Labouysse, M., 1800
Lacey, J. C., Jr, 1753
Lagarde, A., 350
Laird, A. D. K., 531
Laligand, A., 576
Lallemand, G., 1800
Lambert, D. E., 22, 1285, 1846
Lambkin, R. E., 1005
Lamont, N., 208, 985, 1009
Lancaster, P. R., 275
Landa, S., 453
Landers, J. E., 906
Landes, I. H., 423, 568
Landes, S. H., 1485
Landis, B. A., 706
Landrum, B. L., 889
Lane, J. J., 1736
Lane, J. W., 1636
Lang, E. W., 1753
Langeheim, R. L., 654
Langenheim, R. H., 894
Langlois, J., 1647
Lankford, R. R., 6–7
Larbre, J., 265, 1347
Larkin, B. K., 192
Larsen, L. V., 926
Larson, O. A., 1611
Larson, R., 639
Latus, T. J., 1580
Laughlin, B. D., 1047
Lauw-Zecha, A., 444
Lawler, W. T., 1496
Leach, R. O., 378
Lebourg, M. P., 1815
Le Berre, A., 1175
Le Chatelier, J., 1222
Lechler, S., 1256
Ledbetter, R. L., 388
Ledgerwood, L. W., 1536, 1411
Lee, E. H., 715
Lee, W. F. Z., 435, 725
Lefebure, G., 1643
Lefol, J., 1703
Legate, C. E., 1672
Legatski, T. W., 1063
Léger, J., 1175
Lehman, J. J., 906
Leicester, P., 222
Leidi, G., 1741
Leissner, E. L., 1836
Lejay, —, 1146
Lemoine, M., 158
Lempert, F. L., 1618
Le Nobel, G. W., 957
Lenoch, H., 285
Lépée, P., 1427
LePrince, P., 603
LeRosen, H. D., 1179
Leveugle, J., 1077
Levis, R. H., 1165
Levy, W. J., 1218
Lewick, L., 1311, 1315
Lewis, P. J., 968
Lian, H. M., 1581
Lichtenfels, D. H., 458
Liebhafsky, H. A., 123
Lieder, N., 645
Liederman, D., 447
Liljestrand, W. E., 364, 368, 698, 1788
Limes, L. L., 327
Lindholm, T. M., 1086
Lindrum, W., 200
Link, W. K., 339
Liotier, J. P., 943
Lissant, K. J., 1554
Little, P. A., 952
Littlewood, A. B., 439
Lloyd, J. J., 1241
Lodwick, J. R., 1187
Loeff, J., 262
Logan, L. J., 659, 1137, 1287, 1459
Loible, J. E., 1202
Lomi, C., 638
Long, F. V., 645, 1863
Longsworth, C. B., 936
Loomer, J., 908
Lorenz, K., 129
Louis, M., 354
Love, F. H., 418
Lowd, J. D., 721
Lowe, A. G., 1695
Luchter, A., 242
Ludwig, E. E., 838, 1369, 1876
Lukehart, C. O., 1001
Lumbroso, D., 585
Lunumus, J. L., 1413
Lutz, H., 1909
Lyn, W. T., 827
Lynch, E. J., 719
Lyon, J. R., 1027
Lytle, W. S., 1837

Maasry, F. M., 1074
MacAlister, R. S., 537
McAuslan, E. A., 151
McCamish, H. M., 109, 1359
McCarty, D. G., 198
McCaslin, J. C., 154, 409, 544, 547, 737, 742, 1131, 1288, 1456, 1572
McClure, C., 1034
McClure, G., 1139
McConnell, G., 1515
McCoy, R. N., 1659
McCutchan, R. C., 1433
McDaniel, W. W., 1473
McDannold, G. R., 1805
MacEachern, J. P., 180
McEwen, C. R., 532
MacFarlane, R. M., 1549
McGhee, E., 173, 181, 683, 691, 693, 980, 1104, 1415–17, 1797–8, 1801
McGookey, D. P., 1387
McGrath, H. G., 1686
Machnik, W., 186
McKenna, T. A., Jr, 459
McKetta, J. L., 1641
McLaughtin, H. K., 1630
McMillin, K. K., 766
McMullen, J. J., 752
McNamara, R. F., 429
McNaughton, D. A., 19
McNeese, C. R., 608
McNeil, D., 1603
McNesby, J. R., 260
McNiel, J. S., 379
Macrygeorgos, C. A., 1439
Maddox, R. N., 100, 571, 1370
Mädrich, O., 1684
Magner, H. J., 874
Mair, B. J., 448
Mair, J., 1665
Majorelle, J., 1227
Maker, F. L., 1595
Mallory, H. E., 1789
Malmstadt, H. V., 798
Malone, B. C., 903
Maloubier, F., 802
Manasterski, G., 53, 1559
Mangold, G. B., 32
Manning, R. E., 1058
Manry, J. T., 113
Mapes, G. J., 700, 1012
Mapstone, G. E., 124
Marechal, J., 1157
Margolinas, M., 1667
Maronowski, N. C., 118
Martch, H. B., Jr, 1594
Martel, A., 157
Martelino, E., 343
Martin, J. C., 704, 1826
Martin, L. J., 336
Martin, R. G., 1694
Martin, R. L., 456, 1057
Martini, E., 1771
Martlew, G. K., 1739
Martynek, M., 1316
Marx, J. W., 894
Massimilla, L., 1161
Mathew, Z., 1571
Mathews, M. A., 308
Mathews, S. J., 861
Mathews, W. E., 1301
Matsuyama, G., 1061
Mattax, C. C., 888
Mattei, E., 1932
Mattei, J. B., 1006
Matthews, B. J., 479
Matthews, C. S., 802
Matthews, J. S., 1333
Maxwell, J. C., 346
Maxwell, V. W., 1727
Maze, R. W., 1878
Mazet, L., 1663
Maziekien, I., 1332
Mead, H. N., 189
Meaders, L. B., 539
Medders, W., 1790
Megill, R. E., 404, 1451
Mclaven, R. M., 1472
Melhuish, W. H., 610
Melmoux, J., 626
Melton, J. O., 25
Mempel, G., 682
Mensch, W. H., 67
Menzie, D. E., 1567
Merlini, E., 1776
Merriam, D. F., 1130, 1384
Merryman, C. J., 1810
Messmer, J. H., 1276
Metcalfe, L. S., 1207
Meunier, S., 1654
Michaelis, P., 1336
Michel, J., 577
Michels, E. C., 83, 419
Mihram, R. G., 48
Miles, F. W., 1444
Milhous, H. C., 1576
Miller, C. C., 880
Miller, E. R., 89
Miller, P. H., 1206
Millican, M. L., 1008
Mills, E. W., 1886
Milner, O. I., 447
Milo, V. P., 372, 529
Minor, H. B., 1754
Mitchell, J. A., 46
Mitchell, T., 592
Mitchell, W. F., 293
Mitura, F., 145, 164
Modelevskij, M. S., 1264
Mohnhaupt, D., 763
Monaghan, P. H., 518, 890
Monahan, R., 153
Montarnal, R., 597, 602, 1326
Montel, J., 628
Montell, J., 1743
Montgomery, D. S., 939–40
Moore, C. A., 17, 338, 546
Moore, J. E., 896, 1280
Moore, J. M., 713
Moore, P. L., 977, 1105, 1414
Moore, W. B., 1409
Moore, W. D., 400
Moos, J., 1602
Moraglio, G., 599, 937
Moran, J. P., 981
Morin, P., 1403
Morrison, T. E., 994
Morse, R. A., 1113
Moses, P. L., 185
Moss, J. T., 379, 1430
Mott, W. D., 681
Motte, E. I., 1877
Mottlan, A. Y., 846
Moulin, M., 294, 1712
Mount, J. R., 672
Mozes, G., 1700
Mozes, P. Z-G., 1197
Mrazek, M., 1259
Mudd, O. C., 640, 822, 1358, 1737, 1916
Mueller, T. D., 1560
Muller, B., 1463
Mullowney, J. F., 586
Mungan, M., 862
Munier-Jolain, J. P., 144, 879
Munteanu, G., 476
Murray, G. S., 32
Müschenborn, W., 1715
Mustafa, A., 1748

NACE Technical Unit Cttee T-IC, Task Group T-IC-2, 1728
NACE Technical Unit Cttee T-IC, Task Group T- IC-5, 1729
Nawrocki, J., 186, 1257
Nelson, K. H., 1330
Nelson, L. B., 1329
Nelson, M. D., 986
Nelson, W. L., 134, 311, 1004
Neptune, F. B., 931
Nessler, A., 625
Neuworth, M. B., 1623
Newell, C. O., 1531

Nicholls, W. E., 830
Nicksic, S. W., 1661
Nicolescu, I. V., 771
Nicolson, K. M., 989
Niemientowski, S., 246
Nieuwenhuis, F. J. M., 1327
Nightingale, E. R., Jr, 1331
Nijhoff, G. J. J., 869
Niklasson, R., 468, 1188
Nitsch, W., 283
Nixon, A. C., 1754
Noferini, A., 1689
Norden, R. B., 825
Norris, M. S., 1334
Norrish, R. G. W., 593
Norton, J. R., 1269
Nosow, E., 1577
Nottes, E. G., 464
Novansky, J., 1897
Nuzzi, M., 1191
Nyul, G., 278, 1700

Oberbach, E. h. J., 1071
O'Brien, T. B., 1428, 1544–5, 1796, 1828
Obuchowicz, Z., 163
O'Connor, J. G., 1334
Odeh, A. S., 905
Oden, E. C., 1934
Oelderik, J. M., 1322
Okamoto, K. K., 847
O'Keeffe Trowbridge, M. E., 947
Olds, W. F., 1705, 1708–9
Oley, P. M., 1624
Olhovich, V-A., 1390
Olley, R., 1304
Olson, D. C., 402
Olson, H. N., 1616
Opie, C. M., 319
Organick, E. I., 607
Orman, F. L., 1240
Ortloff, G. D., 380
Orzechowski, P., 1338
Osoba, J. S., 890
Ostaszewski, J., 179
Osterle, J. F., 282, 1503
Oudelette, A., 1401
Ouvrard, —, 253
Overbeek, J. Th. G., 794
Owens, H., 190
Owens, S., 1468, 1915
Owens, W. W., 1422

Padovani, C., 1343, 1880
Paillassa, M., 1442
Paleari, C., 1343
Pallister, A. E., 1774
Palmer, M., 653
Papia, A., 771
Paratella, A., 1156
Parc, G., 1644
Paresy, F., 1037
Park, A., 1413
Park, B. D., 1727
Parker, C. A., 804
Parker, R. H., 8
Parker, R. W., 1804
Parks, C. F., 1123
Parrish, D. R., 1835
Parry, E. P., 1061
Pascal, G. M., 102
Patchen, F. D., 697
Pauschenwein, E. G., 1145
Pavlovic, H., 1185
Pawlowski, H., 1300
Peaceman, D. W., 123
Pedersen, J. N., 689
Pedinelli, M., 1176
Peisler, A. M., 837
Pekar, L., 1780
Pelc, L., 246
Pellecer, A., 444
Perkins, T. K., 527
Perrine, R. L., 716
Perrodon, A., 1373
Perronnet, J. C., 1565
Perry, C. R., 1884
Perry, M. V., 1052
Perry, R. H., 1834
Perry, R. O., 58
Perry, S. F., 779
Petelle, R., 864
Peter, S., 1896
Petermann, R., 1344
Petrocelli, J. A., 458
Petrow, A. D., 780
Pew, H. P., 1148
Peyton, G., 1524, 1574
Pfluger, R. D., 1586, 1888
Phelps, T. W., 655
Phister, M., Jr, 787
Picard, M. D., 334
Picard, P., 622–5
Pilcher, H., 119, 629, 1340
Pietsch, H., 455
Pieuchot, M., 349
Pinchas, S., 440
Pines, H., 249
Pines, R. M., 1730
Pink, J. F., 110
Pipkin, J. L., 1561
Pipkin, O. A., 481
Pirson, S. J., 1100
Pitzer, S. C., 534
Plaza, J. B., 1431
Plitt, F. H., 1044
Poettmann, F. H., 718
Pohl, J., 211
Pollard, P., 50
Pollock, C. B., 1000
Pommier, —, 857
Pomykala, Z., 272, 1316, 1342
Pontalier, Y., 856
Popescu, A., 771
Porsche, F. W., 445, 1674
Porter, R. S., 461
Porter, S. P., 1226
Post, G., 1036
Postle, R., 114, 251
Pouit, R., 642
Powell, D. H., 1080
Prather, B. Y., 425
Prats, M., 209
Preotescu, O., 274
Preston, S. T., 1062
Price, H. S., 1824
Primavesi, G. R., 613, 795
Probandt, W. T., 150, 330
Prohaska, B., 618
Protche, R., 548
Pryor, J. A., 1429
Puddington, I. E., 844
Putnam, A. A., 811
Putnam, I., 1498
Putnam, J. A., 531
Putney, H. D., 776
Pyle, H. C., 1756
Pyrah, A. F., 450

Qasem, A., 1462

Raask, E., 799
Rachfal, S., 1296
Rachford, H. H., 723
Radmacher, W., 1335
Ragan, J. T., 694
Rahmes, M. H., 1050
Raimbault, C., 617
Raimer, B., 920
Rainier, P. W., 16
Ramey, H. J., 197
Ramsay, W. A., 305
Ramshaw, C., 257
Rand, W. W., 696
Rankin, M. R., 187
Ranneft, T. S. M., 1395
Raphael, L., 235
Rapoport, L. A., 1014
Rasbash, D. J., 483
Rase, H. F., 258
Rassmuss, J. E., 917
Rastoul, H., 1933
Raudenbusch, H., 1060
Ravel, C., 1865
Reboul, J., 578
Rederon, C., 361
Reed, D. W., 1825
Reed, P., 646, 1141, 1143, 1868
Reed, R. L., 1824–5
Reekstin, R. W., 1267
Reeves, C. C., 150, 330, 671–2, 851
Reinhold, W. B., 34
Reinisch, R., 1279
Reitma, K., 93
Renzanigo, F., 1343
Repenning, C. A., 13
Resen, L., 97, 243
Reverdy, X., 350
Reynes, G., 554
Reynolds, F. S., 961
Reynolds, R. C., 1088
Reytor, R. S., 199
Ribe, K. H., 995
Rice, G. S., 1469
Rice, J. D., 534
Richard, L., 927
Rick, A. W., 1067, 1349
Ridgway, J. A., Jr, 843
Ridings, R. L., 1593
Riesenfeld, F. C., 586
Riggs, R. J., 1794
Righi, A., 587
Riley, E. A., 732
Rimbert, F., 21
Roark, G. E., 1817
Roberton, R. S., 450
Roberts, A. L., 621
Roberts, A. P., 873
Roberts, C. H., 1092
Roberts, G., Jr, 60
Roberts, T. G., 68
Robertson, K. W., 563
Robinson, D. B., 1439
Robinson, P. E., 1833
Robinson, R. L., 1423
Rodabaugh, E. C., 228
Rojas, A. G., 545
Rolfe, B. N., 2
Roliff, W. A., 14
Rollins, H. M., 371
Rollins, J. T., 713, 722
Roof, J. G., 883
Rose, W. A., 499
Rosenbaum, M. J. F., 892
Rosenburg, M., 519
Rossi, C., 1673
Rossini, D., 1665
Rossini, G., 1689
Rossmann, F., 270
Rosu, G., 410
Roszel, S. S., 403
Roth, S. E., 1892
Round, G. F., 1441
Roux, F., 802
Roux, R., 788
Rowan, G., 517
Rowe, F. G., 1664
Rowe, G. W., 275
Rowell, D. A., 1653
Rozeanu, L., 274
Rubsamen, E. B., 861
Rudd, J. W., 631
Ruhe, R. W., Jr, 699
Rühl, W., 202
Russell, G. F., 1051
Russell, J. T., 757
Russell, R. J., 1501, 1693
Rutledge, R. D., 153
Ryland, L. B., 1659–60

Sabaris, L. S., 20
Safronchook, V., 1365
Salnikov, I. S., 44
Salomon, T., 1314, 1487
Salooja, K. C., 789
Salvadori, A., 576
Salvi, G., 1159, 1481
Salvsen, C. G., 635
Samuelson, G. J., 1554
Sando, W. J., 506
Sanford, R. A., 778
Sanin, P. I., 1504
Sarre, D. A. G., 1228
Savelli, J., 1565
Savit, C. H., 1101
Sayre, A. T., 533
Scala, C., 859
Schaeben, L., 303
Schall, R., 878, 1424
Schaller, H. E., 1007
Schartz, C. M., 1491
Scheidegger, A. E., 1103, 1378
Schiffino, R., 1934
Schilson, R. E., 718
Schlecht, F., 548
Schlösser, W. M. J., 92
Schluter, E. C., Jr, 1061
Schmid, B. K., 1163
Schmidt, H., 283
Schmierer, A. F., 1212
Schmit, H. G., 1793
Schneider, P. E., 1616
Schneider, S. J., 329
Schnurmann, R., 1893
Schoen, W., 843
Schott, C., 1174
Schreiber, H. H., 1193
Schremp, F. W., 1732
Schuls, I. W., 658
Schultze, G. R., 1602
Schulz, H., 629
Schuster, F., 630
Schuster, G. H. W., 84
Schweizer, J. L., 271
Schwenk, U., 1182
Scisson, S. E., 1297
Scott, C. G., 1653
Scott, H. M., 1894
Scott, P. P., Jr, 1413
Scott, R. W., 54, 1010, 1833
Scruggs, W. E., 1214
Seaman, A., 180
Searle, C. E., 605
Segesman, F., 351
Sellers, E. S., 1692
Septundy, V. I., 1264
Serruys, M., 480
Sessions, R. E., 1838
Setser, D. D., 981, 1119
Shabad, T., 1746
Shabtai, J., 1621, 1626
Shalit, H., 840
Shannon, W. D., 1281, 1831
Sharbaugh, A. H., 790
Sharefkin, J. G., 1662
Sheets, R. W., 1483
Sheldon, J. W., 194, 705
Shen, C. Y., 1056
Shepard, F. P., 7
Sherwood, P. W., 90, 474, 758, 1150, 1309, 1604, 1629, 1914
Shick, R. L., 911
Shideler, N. T., 301, 1076, 1353, 1722
Shively, J. H., 1657
Shontz, W. P., 1473
Shreve, R. N., 775
Sikora, V. J., 525
Sikosek, B., 1099
Silver, R., 1167
Simmons, J., 390
Simon, I., 606
Simonic, N., 1493
Sims, D. L., 36
Singewald, J. T., 1573
Singh, I. J., 201, 702, 914
Siniramed, C., 1741
Sircon, M., 930
Sisk, H. H., 1633
Sisko, A. W., 1492
Siskov, P. A., 1253
Skeet, T. H. H., 313
Skinner, D. U., 1790
Skinner, E. J., 1873
Slade, E. A., 1035
Slagle, K. A., 33
Slingenberg, H. J., 417
Sliwinski, Z., 1245
Slobod, R. L., 1003, 1437
Slotterbeck, O. C., 478
Slupczynski, H., 1408
Slyngtad, C. E., 783, 1618
Smith, D. D., 1560
Smith, D. G., 1352
Smith, F. W., 369
Smith, M. A., 929
Smith, R. L., 203
Smith, W. T., 543, 1134
Sneed, R. W., 1541
Snell, R. W., 263
Snoeck, E., 957
Snow, H. E., 136
Snyder, R. E., 1333
Socrate, L., 1564
Socrate, M. L., 1466
Soemantri, R. M., 104
Solecki, M., 1494
Somerton, W. H., 169
Sonido, E. P., 19
Sova, O., 791, 1716
Spector, D., 1031, 1209
Spijker, P. van'T., 836
Spilhaus, A., 168
Spiri, W. H., 34
Spivack, J. D., 1730
Sprague, S. R., 816
Spreadborough, J., 1507
Sprigg, R. C., 1533
Spriggs, L. A., 231
Sprinkheuzen, P. A., 223
Staats, W. R., 230, 1862
Stackler, W. F., 1781
Stade, P. W., 661
Stadnikoff, G., 1
Stafford, C., Jr, 117
Stahl, C. D., 383, 1117
Stanley, D. J., 1392
Stanton, J. P., 1278
Stapleton, C. A., 561
Stark, G. W. V., 483
Stark, R., 1032
Steckel, F., 1621, 1626
Stedman, R. L., 1645
Stein, G., 262
Stepanek, D. L., 1275
Stepek, R., 224
Stephens, J. O., 227
Sterrett, E., 420, 1864
Stevens, W. F., 711
Stewart, F. M., 535
Stewart, W. E., 812
Stheeman, H-A., 412
Stick, J. C., Jr, 1856
Stipe, J. C., 327
Stoddard, K. J., 915
Stokey, E. W., 903
Stone, C. B., 373
Stone, V. C., 975
Storer, T. C., 1431
Stormont, D. H., 103, 396, 1158, 1551, 1612, 1329, 1921
Straight, D. M., 831
Strickert, R., 1409
Stringer, I. S., 1893
Stross, F. H., 620
Stroud, S. G., 1007
Stumm, W., 823
Sturdivant, W. C., 191
Sudbury, J. D., 402, 906
Sufall, C. K., 691, 1557
Sullwold, H. H., Jr, 1239
Sulzberg, T., 1662
Sutton, C. T., 1186
Svoboda, R. F., 1454

Swain, P., 744–5, 1534
Swaminathan, V. S., 465, 1677
Sweeney, S. A., 1556
Swenson, K. P., 1793
Swift, G., 664
Swiss, M., 78, 488, 557, 1685
Szadaj, Z., 210
Szurrat, J., 1070, 1517

Tadema, H. J., 1912
Tailleur, R. J., 519
Tainsh, H. R., 342
Tamele, M. W., 1659–60
Tanguy, D. R., 1823
Tanzenberger, E. W., 1039
Tappan, H., 1096
Tatton, W. H., 1356
Taylor, L. C., 722
Taylor, V., 1578
Taylor, W. E. L., 1500
Tehle, E., Jr, 1357
Tek, M. R., 536, 863
Temme, T., 284, 287, 1072, 1196, 1699
Teplitz, A. J., 514
Ternek, Z., 155
Terres, E., 266, 1174
Thielsch, H., 662
Thiéry, J., 641, 1068
Thoenes, H. W., 1345
Thomas, C. E., 185, 534
Thomas, G. E., 1389
Thomas, G. R., 1577
Thomas, J. B., 891
Thomeer, J. H. M., 1436
Thonon, C., 580
Thornley, G. H., 1065, 1192
Thornton, J. D., 257
Thoron, C., 958
Thorpe, R. E., 1754
Threadgold, P., 353
Thring, M. W., 1900
Thurber, C. H., 167
Tipper, C. F. H., 256
Tiraspolsky, W., 360, 1537
Titschack, G., 451
Tixier, M. P., 193, 351, 1823
Todd, R. A., 886
Tokarski, A., 163
Toktar, C. N., 871
Toler, H. N., 1526
Tomlinson, L. O., 227
Toombs, W. E., 1249
Topham, W. H., 614
Toren, P. E., 117
Torrey, P. D., 1920, 1924
Toth, J., 1195
Towle, G., 887
Tracht, J. H., 1825
Trad, E., 618
Trambouze, P., 762
Traynard, P., 660
Tréchans, M., 1742
Treichler, H. E., 26
Tresidder, C. G., 125
Trettin, H. P., 1764
Treybal, R. C., 1608
Trimble, G. A., 986
Troughton, H. L., 828
True, M. E., 397
Truman, P. W., 1317, 1426
Trumphy, D., 158
Tugendhat, G., 834
Turner, A. G., 941–2

Uccellini, S., 1099
Ulsenheimer, G., 1193
Umstätter, H., 818
Unler, A., 1228
Urbanczyk, S., 1337
Utzmann, R., 1403

Vajk, R., 347
Vamos, A., 278
van Amstel, A. P., 588, 1627
van der Berg, C., 1926
van der Knaap, W., 526
van der Poel, C., 530
van der Wiel, A., 1670
van Eggelpoel, A., 1377, 1522
van Elk, J., 595
van Krevelen, D. W., 820, 1353
van Lingen, N. H., 690, 1435
van Meurs, P., 530
van Weelden, A., 836
Varma, C. P., 160
Vary, J. A., 87
Vaughn, G. E., Jr, 204
Venema, M. P., 1220
Vesely, V., 1897
Vetterlein, P., 1102
Vichnievsky, R., 590
Vignes, S., 574
Vincent, R. P., 1784
Virus, W., 797
Vladiminov, B. V., 1251
von Schickh, O., 464
Vrins, T. J., 177

Waddington, F. B., 1073
Waddington, W., 1603
Waddle, P. R., 374
Wagener, K-G., 200
Wagner, O. R., 378
Wainerdi, R. E., 381
Walker, E. W., 55
Walker, J., 1548, 1899
Walker, J. W., 897
Walker, L., 1631
Walker, S. W., 60
Walker, T., 1795
Wallam, K. N., 372, 529
Walper, J. C., 1757
Walsh, T. J., 1332, 1601
Walther, H., 1199
Walton, H. R., 94
Ward, D. G., 424
Warman, H. R., 1084
Warren, J. L., 1824
Warren, R. N., 1638
Wasicek, J. J., 385
Waterman, H. I., 104, 595, 616, 729, 1164, 1322, 1327, 1353
Waterman, J. A., 616, 792
Waters, A. B., 48
Watkins, J. W., 204, 442
Watkins, P. B., 956
Watson, P. K., 790
Watzke, J. T., 1594
Wdowiarz, S., 163
Webb, O., Jr, 776
Weber, A., 1321
Weber, A. G., 388
Webster, G. M., 377
Wegener, O., 805, 1201, 1351
Weimer, R. J., 673
Weinert, C. A., 954
Weininger, J. L., 1488
Weintritt, D. J., 1252
Weiss, H., 1905
Weiss, K., 631
Weiss, W. J., 367, 1248
Weissmann, J., 633
Wellings, F. E., 1767
Welsh, J. R., 198
Wengerd, S. A., 12
Went, F. W., 1895
Westervelt, W. W., 932
Westfield, E. R., 1688
Weyler, J. R., 533
White, D., 621
White, J. N., 1209
White, L. A., 1475
White, P. D., 379, 1430
Whittier, F. C., 301
Whitworth, V. L., 1086
Whyman, B. H. F., 402
Wieland, D. R., 997
Wiesner, L., 108
Wightman, R. E., 1166
Wilcox, G. W., 1331
Wilder, J. B., 1784
Wilding, J. S., 942
Williams, C. C., 1614
Williams, L. H., 1713
Williams, N., 740
Williams, R. L., 19
Willis, A. J., 40
Wilson, D. S., 1678
Wilson, G. M., 982, 1109, 1850
Wilson, W. B., 423, 568
Winefordner, J. D., 798
Winkler, H. W., 57, 375, 540, 885, 992
Winsor, P. A., 1649
Winters, J. C., 456, 1632
Witte, M. D., 900
Wolfs, P. M. J., 1353
Wolwowicz, R., 170, 1258, 1271
Wood, L. G., 1908
Woodson, J. O., 358, 521
Woolcock, B. J., 299
Woolcock, J. W., 290
Woollard, G. P., 1091
Worbe, P., 632
Word, W. W., 56, 602
Worden, J. A., 323–4
Worsham, H. N., 933
Wright, C. C., 1015
Wright, L. T., 1319
Wright, M. S., 967
Wright, W. N. N., 1046
Wulthier, P., 765
Wustrow, W., 1684
Wyant, R. E., 527
Wyllie, D., 1500, 1502, 1692
Wynne, R. A., 40

Yao, T. C., 445
Yaxley, R. P., 1918
Yocum, B. T., 416, 754
Yoo, H. D., 85
Youmans, A. H., 174
Young, A. P., 1491
Young, D. M., 1523
Young, R. G., 970
Young, T. B., 979
Young, T. R., 1484, 1591
Yzaguirre, L. A., 1098

Zaalberg van Zelst, E. F., 869
Zaba, J., 1553, 1802, 1807, 1819, 1822
Zaffarano, R. F., 895
Zahradnik, R., 596
Zakar, P., 278, 1195, 1700
Zakrocki, Z., 268
Zborowski, Z., 1465
Zeito, G. A., 1568
Zhuze, T. P., 1882
Ziegler, K., 600, 950, 1170
Zielinski, A. D., 1331
Ziemer, C. W., 398
Zimmerman, C. W., 174
Ziser, J. A., 1811
Zlatkis, A., 619
Zondek, B., 705
Zoschak, R. J., 1691
Zukrowski, L., 1305
Zunec, G., 1204
Zvezdkin, V. I., 1706

ABSTRACTS SUBJECT INDEX

Numbers refer to Abstract Numbers

Absorbers, design, 1310, 1485
Abu Dhabi, 919, 1460
Acetylene:
  Ediger process, 1717
  hydrogenation, 580
  polymerization, 1161
  production processes, 582
Acrylonitrile manufacture and use, 1203
Adamantane:
  analysis by adduct formation with thiourea, 453
  isolation from petroleum, 448
Additives, 821
Adhesives, 1517
Adsorption, 1044
  gasoline-recovery plant, 429
  of natural gas, 1881
Afghanistan developments, 1394
Africa:
  developments, 141
  exploration, production, and reserves, 72
  North, French petroleum policy, 314
Alabama developments, 1525–6
Alaska:
  " buffer zone " developments, 1135
  developments, 1240, 1581
  geology, 1096
  Soldotna, 1391
Algeria:
  developments, 675, 1373, 1461
  Ohanet field, 1769
Alkylation:
  of benzene and toluene, 778
  of propylene, 776–7
  review (1959), 775
  transalkylation of poly*iso*propylbenzenes, 1322
Alkylbenzenes, synthesis of hydrocarbons C_{14}–C_{17}, 780
Aluminium:
  alloys, in transport and handling of LPG, 1497
  in refinery plant, 758, 1150
  tanks for methane transport, 1584
API Research Projects, No 6, 448, 1665
Amines:
  anti-oxidants in liquid hydrocarbons, 844
  heterocyclic, for fine gases, 119
  selective acetylation and non-aqueous titration, 1661
Ammonia, steam–methane reformer, 768
Amphiphilic compounds, solubilization, 1649
Analytical methods:
  arsenic in petroleum stocks and catalysts, 447
  chlorine compounds in petroleum fractions, 798
  fractional micro-sublimation technique, 610
  for gasoline, 1657
  petroleum coke analysis, 446
  potentiometric titration:
    of hydrogen sulphide and mercaptans, 1659
    of sulphide ions, 1660
  salt in crude oils, 1493
  sodium in liquid hydrocarbons, 1330
Analytical methods (*contd.*):
  sulphur:
    and chlorine in petroleum, 445
    in light petroleum products, 1177
    in organic products, 1175
    in petroleum products by hydrogenation, 1061
  vanadium in petroleum ash, 1178
  water in hydrocarbons, 450
" Anotrol " corrosion control system, 825
Appalachian Basin developments, 1128
Argentina:
  Comodoro Rivadavia Basin, 1448
  developments, 489, 1028
  oil possibilities, 17
  pipelines, 1143
Argon-41 as gas-flow tracer, 267
Arizona:
  developments, 1453
  geology, 669, 1530
Arkansas:
  Arkansas Basin, 332
  developments, 499
  Horsehead field, 374
Aromatization, catalytic:
  of gasoline, 771
  of *n*-heptane and *n*-octane-l-*C*-14, 249
  of hydrocarbons, 1621
Arsenic determination in petroleum stocks and catalysts, 447
Asia exploration, 219
Asphalt:
  in road construction, 474
  from drilling, Virginia, 1238
Athabasca tar sands:
  developments, 743, 1122, 1458
  permeabilities, 1440
Australia:
  developments, 680, 1137
  exploration, 219, 747, 1533
  Great Artesian Basin, 681
  petroleum chemicals industry, 1205
  Roma gas area, 1855
Automation:
  in gasoline blending, 1633
  in natural gas industry, 1168
  in pipelines, 556, 1036
  in production wells, 929
Automobile industry, U.S.A., 1223

Bearings, Glacier dry (DU), 1360
Benzene, alkylation of, 778
Benzothiophenes, side-chain analysis of, 1642
Bitumen:
  adhesion and cohesion, 1702
  binders, 1195, 1350, 1702
  briquetting, 1195, 1197
  as building materials, 1067
  coal–tar bitumen mixtures, 1068, 1198, 1201
  emulsions, 1069
  mechanical testing, 284, 288
  porphyrins in, 639
  rheology of bitumen–Trinidad asphalt mixtures, 283
  in road construction, 287, 1071–2, 1196, 1699–700, 1703
  roofing materials, 286, 1349
  shale-oil bitumen, 1350
  sieving techniques, 285
Bitumen (*contd.*):
  softening temperatures, 1701
  solvent building, 1199
  structural mechanics, 1348
  synthetic resins, 1200
Blue haze in the atmosphere, in petroleum formation, 1895
Boilers, 239
  CO type, 424
  corrosion in oil-fired, 953, 1691
  sectional, 1696
  steam-raising, 1040
Bolivia:
  developments, 547, 1852
  petroleum legislation, 135
Brazil:
  oil possibilities, 339
  petroleum and petroleum chemicals industry, 1934
Brines, determination of potassium in, 442
Burners:
  Mecker-type, 1647
  natural gas, 626
  nozzle coking, 635
  pressure-jet fo · boiler, 239
  Shell's blue flame type, 657
Butadiene, 290–1
  butadiene–styrene synthetic rubber, 1718
  Dow process, 107
  thermal aromatization of 1,3-butadiene, 1626
Butane, evaporation properties, 809

Cables, non-draining compounds, 1906–7
California:
  developments, 1850
  Models formation, Los Angeles Co, 1239
  natural gas, 543, 1134
Canada:
  Alberta:
    Cardium sand, 674
    Okotoks field, 1624
    Swan Hills, 971, 1390
  Arctic:
    exploration, 510, 1371
    geology, 15–16, 217, 1136, 1765
  British Columbia:
    developments, 1763
    geology, 1763–4
  Eastern:
    developments, 1579
    exploration, 14, 544
  Manitoba geology, 337
  natural gas, 1922
  NW Territories developments, 1097
  North Yukon–Lower MacKenzie, 336
  refinery construction, 1153
  refining capacity, 570, 1152, 1921
  Saskatchewan:
    geology, 852
    Weyburn field, 915
  Western:
    developments, 1580
    geology, 1389
    oil and gas fields, 66, 1578
Carbolic oils, 1311, 1315
Carbon black, 476
Carcinogens in mineral oil food additives, 1707

Carolinas, U.S.A., geology, 1091, 1524
Cast iron alloys, use in petroleum and natural gas fields, 1752
Catalysis, heterogeneous, 1648
Catalysts:
  arsenic in, 447
  cracking, 574, 1159, 1481
  particle-size analysis by micromerograph, 589
  reforming, 574
    determination of Cl, S, and Pt, 573
    platinum determination, 1332
  UOP No 4 polymerization, 1048
Catalytic reformates, side-chain-analysis of, 1642
Catalytic reforming, 574–5, 578
  computer control in, 1167
  fouling of pre-heat exchangers, 770
  regenerative, 783
  yield and quality correlations, 765
Central America refining capacity, 1154
Chemical combination, new theory of, 1655
Chemical engineering process data, 1370
Chemical plant:
  boilers, 1040
  lubricants for, 1066
Chemical plant:
  multi-stage, 762
  pipes, 1930
  reactor-design, 258
  steam–methane reformer, 768
Chemical reactions, catalytic dehydrochlorination, 603
Chemistry, new theory of chemical combination, 1655
China developments, 410
Chromatography:
  analysis of oil well gases, 32
  application in gasoline plants, 592
  gas, 269, 455, 1337
    analytical distillation by, 1671
    carrier gas, 620
    catharometers, 439
    coated capillary columns, 462, 619
    column packings, 460
    continuous gas counterflow, 629
    crude oil analysis, 456, 1632
    dissolved gases in petroleum fractions, 458
    flame ionization detector, 1675
    Gasofract apparatus, 797
    of gasoline components, 1657
    for gasoline plant control, 1052
    of hydrocarbons:
      C_1–C_4, 1673
      high mol wt, 1653
      light, 795
      saturated, 457
    of lubricating oils, 618
  micropyrolytic–gas chromatography technique, 1672
  of olefin-free naphthas, 1179
  of olefinic naphthas, 1057
    in refinery laboratories, 1182
    ultra-red spectroscopy, 1640
  gas–liquid:
    of C_2–C_6 hydrocarbons, 1670
    of C_4 and lighter hydrocarbons, 459
    of C_8 aldehydes, 1333
    solvents, 1670
  gas/solid, of xylenes, cresols, and toluidines, 621
  high-speed, for automatic control, 1634
  Stahl thin-layer, 1181
  volatile liquid partition, 461
Clays, sedimentology of, 2
  The Clean Air Act, 1956, 319
Coal:
  alkylation by benzyl chloride-aluminium chloride, 1509
  carbonization, 296, 1753, 1880
  chemical products, 1911
  chemism of coking, 1353
  dehydration of coal sludge, 1715
  distillation, low temperature, 1880
  origin and relationship with petroleum, 1
  oxygen determination, 1335
  smoke emissions tests, 297
  tar, from U.S.A. seam coal, 1753
  thermo-gravimetric studies, 820
Coal tar:
  fractionation of coal tar naphthalene oils, 1603
  from U.S.A. seam coals, 1753
  viscosity, 805, 1351
Coatings, 1076
  coal tar, 301, 1355, 1736
  hot-applied, 1722
  internal, 1298, 1470, 1865
  for pipelines, 1074, 1298, 1356, 1359
  synthetic, 304, 478
Colombia developments, 1766
Colorado:
  Dakota Groups, 970
  Las Animas Arch, 670
  Niobrara field, 151
  South McCallum field, 1444
Combustion:
  acoustic vibrations in Mecker-type burner, 1647
  behaviour of gases, 630
  detonation of hydrocarbon–air mixtures, 793
  in engines:
    diesel, 1740
    gas sampling valve, 131
    knock intensity reduction, 130
    wakes in turbo-jets, 813
  mechanism of anti-knock, 593
  research, 1900
    at Battelle, 811
  spontaneous ignition of hydrocarbon–air mixtures, 800
  thermodynamics of combustion chambers and ramjet exhaust nozzles, 1742
Copenhagen Conference on Oil Pollution of the Sea, 490
Complex forming process, 771
Compressors:
  centrifugal, 1039
  natural gas, 1594
  offshore compressor platforms, 240
  reciprocating, 1593
Compressor stations, 1301
Computers, 787, 837–9, 1083, 1755
  analogue, 110
    in petroleum industry, 590
    in solvent dewaxing, 1319
  digital:
    for convergence pressure, 607
    in petroleum processing, 1483, 1636–7
    for pipelines, 113, 561, 1484, 1591, 1593, 1888
    for stripper-stabilizers, 608
  in distillation programming, 100, 237, 571, 1308
Corrosion:
  bacteriological, 1210, 1357
  in buried pipelines, 1720
  by condensates, 300
  electrical probes, 1510
  " Intergard " paint system, 749
  in oil-fired boilers, 799, 801, 953, 1190, 1499
Corrosion (*contd.*):
  oxidation by vanadium pentoxide, 302
  in petroleum industry, 477, 951
  problems at Lacq, France, 1719
  rates, polarization analysis, 823
  rotameters in, 1721
  of steels:
    by jet fuels, 1731
    rustproof, 303
    sulphur attack, 129
  underground, 640, 822, 1075, 1358, 1720, 1737, 1916
Corrosion control:
  " Anotrol " system, 825
  cathodic protection, 1354
    oil well casing, 906, 1726, 1732
    pipelines, 1074, 1206, 1209, 1211–13, 1724, 1735, 1915
    tankers, 1031, 1208
  coatings: 1076
    coal tar, 1736
    coal tar epoxy resin, 301, 1355
    hot-applied, 1722
    internal, 1298, 1470, 1865
    pipelines, 1074, 1298, 1356, 1359
    synthetic, 304, 478
  inhibitors: 300, 952, 1511, 1725, 1727, 1729
    N-oleoyl sarcosine, 1730
Corrosion prevention in wells, 52, 372, 402
Cracking:
  autothermal, 577
  catalytic:
    cyclic reforming of propane, 575–6
    endothermal, 1160
    feed boiling range, 1047
    feed contamination, 767, 935
    feed preparation, 1605
    of Middle East feedstocks, 1046, 1613
    oxygen enrichment of regenerator air, 247
    processing feedstocks, 766
  coking:
    Tidewater's Avon plant, 1612
  hydrocracking:
    Isocracking, 103, 769, 1158
    mechanism, 1611
    Unicracking, 1312, 1617
  steam, 102
  thermal:
    ONIA-GEGI plants, France, 1609
    " Sand Cracker," 764
  visbreaking, 248, 1004
  waste heat recovery by catalytic oxidation, 584
  yield and quality correlations, 765
Cracking plant, catalytic, gas turbines for FCC units, 1610
Cresols:
  alkyl derivatives, 1644
  biological methods of purification, 242
  m-Cresol solutions, 1646
Crude oils:
  analysis:
    Hassi Messaoud, 622
    M'Bega Eocene MB4, 625
    Ozouri, 623
    Pointe Clairette Cl 1, 624
  compensated-metering turbine, 435
  flowmeters, turbine-type, 725
  infra-red classification, 116
  isolation of 172 hydrocarbons from, 1665
  pumpability of waxy, 1677
  salt in, 1493
Czechoslovakia petroleum industry 1368

Dakota, North, geology, 502, 968
Dakota, South, geology, 503, 1094
Das Island, Abu Dhabi Marine Areas, 1460
Dehydrocyclization of n-C_7H_{16}, 1621
Dehydrogenation:
  of methyl*cyclo*hexane, 1621
  review (1959), 772
Desulphurization:
  catalytic, gas oil, 1191
  Merox process, 106, 583
Dielectrics:
  cable oils, 1708
  conduction and breakdown measurements in n-hexane, 790
  high conductivity phenomena, 1487
  liquid dielectrics behaviour under corona discharge, 1323
  transformer oils, 1706
Diesel engines, 954, 1514
  combustion studies, 1740
  nozzle hole blockage, 1515
  oil consumption, 80
  use of Saharan crude, 632
Diesel fuel ignition promoters, 1343
Diesel oils from tar fractions, 433
Dimethyl*cyclo*hexanes, *cis–trans* isomerization, 1169
2,4-Dinitrophenylhydrazones, 1662
Distillation:
  automatic analytical laboratory, 244
  azeotropic, 1599
  columns:
    fractionating, 1603
    packed, 1156
  computer programming, 100, 237, 571, 1308
  continuous systems, 427
  ebulliometers, 1599
  fractionation, 934, 1600
  high temperature, 1601
  low temperature, of lignite and coals, 1880
  mass transfer, 1156
  phase aquilibria, 101
  plant, SOIND Whiting, 1155
  of Polish ozokerite, 1602
  rapid method for quality control, 614
  rectification calculations, 763
  thermodynamics, 245
Dolomite, 1231
Domestic Heating Symposium, Cardiff, 656
Drilling:
  air, 369, 514, 874, 1541
  air/gas, 35, 1249
    water-shut-off treatment, 691, 873, 1557
  air-hammer, 1787
  bit life, 30, 355–6
  bit weight effect on drilling rate, 1414
  blowout control, 1428, 1544, 1545, 1796, 1828
  cable-tool, 695
  in Canadian foothills, 976
  casing:
    design, 1546
    recovery operations, 1800
    10,487 ft. of 13⅜ in, 1247
  cementing:
    circulation losses, 40
    new additives, 358, 521, 539
    offshore dual tubingless completions, 1808
  completion techniques, 363
    multiple, 692
    Permeator device, 370
    quintuple, 1416, 1552
    sextuple, 1415, 1833
Drilling, completion techniques (*contd.*):
    slim-hole, 512–13, 689, 1406, 1410, 1791
    technical advances, 522
    turnkey, 1540
  continuous coring, 860
  contracts, 177
  casts, 363, 977, 980, 1259, 1793
  deep, 22, 1250
  developments, 974
  diamond, 864, 1405
  directional, 27
  drill pipe failures, 34
  dry-hole costs, 1793
  energy balance and specific power, 1537
  exploratory, 1111, 1537
  EP lubricants for bit-life, 356
  at fifty thousand ft, 362
  fishing techniques, 1106, 1790
  from floating vessels, 696, 989
  foaming agents, 874
  formation damage, 518
  at Hassi Messaoud, 361
  hole deviation, 371
  hydraulic perforating, 31
  Hydra-Perf technique, 171
  instantaneous diagraphy, 1263
  in C Iran, 979
  logging: 1262, 1548, 1795
    electric, 178, 978
    gas, 1265
    neutron, 174, 1549, 1856
    sonic, 1794
  marine, 322
  to Moho layer, 22
  mud flow rate, 1246
  mud pump problems, 698
  new techniques, 683, 974, 1536–7
    U.S.S.R., 172
  offshore, 42, 322
    Lake Maracaibo, 176
    Louisiana, 975, 1798
    underwater completions, 1551
  operating rigs, 1112
  packers, 983
  penetration rates, 26, 690, 975, 1105
  Permeator completion device, 370
  plugging agents, 515
  at Rincon Island, U.S.A., 24
  rotary,
    Canada, 687
    high, 1783
    mud losses, 1782
    percussion, 1784
    rock breakage, 169
    U.S.A., 687, 785
  shot peening, 1539
  systems, 1411
  turbo-drilling, 43–7, 360, 1107, 1261
  for uranium, 982
  U.S.A., 685, 686
    costs, 980
    deep, 1250
    drilling depths, 1024
    Eastern areas, 406
    fields report, 175
    well completions, 688, 1792
    wildcats, 1025
  U.S.S.R., 43, 44, 172
Drilling equipment:
  air drilling, 369
  assembly procedures, Poland, 1258
  automatic drilling spanner, 1257
  automatic weight control, 25
  bits, diamond, 523, 864, 1405
  bottom-hole deflection tools, 36
  core barrels, 28
Drilling equipment (*contd.*):
  drill collars, 1110, 1539
  drill pipe, 359
  floating drilling barges, 696, 989
  formation testing tool, 1407
  for gas drilling, 369
  hammer drills, 364, 368
  hydraulic percussion jar, 684
  hydraulic ram (" taran "), 179
  mechanization, 170
  milling tools, 516
  multiple zone sampler, 1799
  offshore:
    aluminium jackets, 176
    aluminium drilling platforms, 1409
  percussion drilling tools, 1784–5
  Polish, 1260, 1408
  rigs:
    desert, 1104, 1786
    electric, 357, 693–4, 865, 1417
    engines, 173
    " high-line," 29
    light portable, 23, 1405
    miniature workover, 1418
    mobile, 868
    rotary, 1256
    for uranium, 982
    for winter operations, 1109
  stuffing-box lubricator, 1797
  tool joints, 1408, 1542
  turbo-drills, 1107, 1261
  weight indicator, 866
Drilling fluids, 872, 984
  aerated sea water, 861
  barytes recovery, 184
  cements:
    additives, 33, 521, 539, 1801
    Gilsonite, 33
    water-in-oil emulsion, 697
  gel development, 871
  losses and prevention, 1255
  low-solids, 1413
Drilling muds, 37, 524, 1789
  additives:
    analysis of gases in, 39
    Bentonite, 862, 870
    carboxymethylcellulose (CMC), 869
    lignosulphonate, 1108
  clay-free salt water, 1412
  conditioning, 699
  determination of electrical properties, 985
  directory of, 1550
  EP lubricants, 182, 519
  formation evaluation, 365
  gas detection, 1254
  high temperature, 38
  hydrocarbons in, 1251, 1253, 1264
  inverted emulsion, 986
  leaks, 183
  lignite–caustic soda, 366
  mud solids, control, 987
  non-fermenting starch, 988
  oil-base, 180
  polymer, 1413
  shale control muds, 367, 1248
  streaming potential data, 520
  surface mud systems, 181
  water-in-oil emulsion, 1252

Economics:
  Common Market, petroleum aspects, 1077
  the economist's role in the petroleum industry, 1219
  evaluation of projects, 956
  evaluation of oil properties, 1080
  investment, discounted cash flow, 961

Economics (*contd.*):
marketing:
Sahara, 650
U.S.S.R., 1746
Middle East developments, 651
petroleum engineer's function in oil and gas financing, 1518
sampling techniques for data, 645
world oil demand:
(1959), 212
(1960–1970), 648
world oil industry in the sixties, 1218, 1220
Ediger process, 1717
Education, engineering trends in, 654, 1079
Electrochemistry, micelles in solution of Ca sulphonate in cetane, 1324
Elastomers, 1070
Energy requirements:
W Europe, 1230
Middle East, 834
U.S.A., 655
U.S.S.R., 1365
Venezuela, 834
World, 1743
Energy sources:
oil and uranium 1222
in OEEC countries, 1932
Engines:
CFR, in Italy, 1741
diesel, 954, 1514
combustion studies, 1740
nozzle hole blockage, 1515
oil consumption, 80
use of Saharan crude, 632
free-piston, 1738
GMR Stirling thermal, 1215
gas turbines:
blade corrosion, 642
for FCC units, 1610
fuels for, 469
for petroleum chemicals plant, 566
for pipeline pumping, 227
marine, 954
multi-fuel, 828–30, 1514, 1739
NSU-Wankel, 1316
Engine problems:
cold starting in diesel engines, 827
combustion chamber deposits, 633
diesel exhaust smoke, 1216
water and water alcohol injection, 631
Engine testing, CFR, in Italy, 1741,
Engine wear:
cylinder liners, 1491
IFP-RA3 bench test, 1668
piston rings, 641
in spark ignition engines, 1917
Ethylbenzene, manufacture with UOP No 4 catalyst, 1048
Ethylene:
catalytic oxidation, 597
consumption, 1625
demethanizing of mixed gases, 807
polymerization by γ radiation, 774
production, 1489, 1625
slow oxidation, 938
uses, 1625
Ethylene oxide:
from catalytic oxidation of ethylene, 597
decomposition, 261
Europe, Western:
energy sources, 1932
petroleum industry, 1933
pipelines, 1589, 1871
refinery expansion, 313
Exploration, 1756
Asia, 219
Australasia, 219, 747
Exploration (*contd.*):
Canada, 14, 510, 544, 1371
costs, 1284, 1451
marine areas, 322, 1534
Sahara, 218
U.S.A., 738, 1017
Venezuela, 71
Exhaust gases, automobile:
" blue smoke," 944
from diesel engines, 1216, 1343
from French cars, 480

Fauser–Montecatini processes, 587
Filtration and water separation, tests, 945
Fischer–Tropsch, synthesis of carboxylic acid esters, 1164
Florida, geology, 498
Flue gases:
corrosion tests on materials, 1499
determination of SO_2 and SO_3 in, 799
heterocyclic amines inhibition, 1190
probe for acid deposition, 801
Fluid flow, gas–liquid, in horizontal pipes, 241
Fluid mechanics, electro-magnetic valves, 1887
Fluorine elastomers, 1070
Fluor solvent CO_2-removal process, 1495
Formosa, developments, 412, 679, 973
Four Corners region, U.S.A.:
geology, 323–4
oil possibilities, 12
photogeology, 969
Fractionation:
countercurrent apparatus, 601
theory, 934, 1600
France:
geology, 161, 855–6, 1396
joint ventures in production, 647
marketing, 1747
natural gas, 554, 627, 1466, 1496, 1681, 1682
new oil fields, 1464
Parentis, 877
Free radicals, isomerization of primary *n*-alkyl, 260
Friction, *see under* Lubrication: Friction and Wear Studies
Friedel–Crafts, acetylation of olefins into ketones, 1662
Fuel cells, 123, 491, 845, 1519
Fuelling, aviation, 415
Fuel oils:
additives, 273, 821, 1691
Admiralty, 815
falling sphere pumpability test, 1694
flow properties, 1692, 1695
full-scale pumping, 1501
laboratory pumpability test, 1695
laboratory rig, 1502
storage, 1500
viscometers for, 1692
yield value test, 1693
blending unit, 94, 1318, 1635, 1901
Bunker C, 814
and sectional boilers, 1696
vanadium analysis, 454
Fuels:
additives, 821
aviation:
filtration, 945
knocking characteristics, 468, 1187–8,

Gabon, W Equatorial Africa:
crude oil analyses, 623–5
developments, 340, 341, 854
Gas making, 119, 1340
in British gas industry, 465
catalytic cracking of heavy fuel, 579
laboratory scale, 1897
Lurgi process, 1339–41, 1684
processes, 1678
Rimbey gas plant, Canada, 1885
Shell process, 588, 1627
Texaco process, 1616
Gasofract chromatograph, 797
Gas oils:
additives, 464, 821
cat desulphurization, 1191
decomposition of SO_2-raffinates, 1174
hydrofining, 1596
Gas purification processes, 586
Gas turbines:
blade corrosion, 642
for FCC units, 1610
fuels, 469
for petroleum chemicals plant, 506
for pipeline pumping, 227
Gases, combustion behaviour of, 630
Gasoline:
aviation, knocking characteristics, 468, 1187–8
blending, 1633
see also Motor fuels
Geochemical exploration, 1100
Geochemistry:
of dolomite, 1231
study of Paris Basin oils, 354
Geology:
aerial photography, 495
aeromagnetic surveying, 665
Black Mesa Basin, Arizona, 669
Brazer dolomite, Utah, 506
coloured resin technique, 1520–1
Dakota group, Colorado, 970
" decoupling " zone effect, 1378
dip-log computer chart, 664
dolomite, synthesis and geochemistry, 1231
fault nomenclature, 321
Florida, 498
Jurassic Todilto strata, N Mexico, 668
Kaolinite, illite and montmorillonite clays, 667
mapping techniques, 666
Mississippi Delta, 6–7
N Mexico, 9
Ravni Kotari region, Yugoslavia, 1099
Riddle formation, Oregon, 508
C Texas, macroinvertebrates, 8
time, migration and continental drift, 964
Upper Cretaceous rocks, Rocky Mountains, 673
Upper Devonian rocks, New York State, 497
Upper Silesia coal basin, 164
Geophysical surveying:
airborne gravity meters, 1778
computer application, 1083
co-ordination with geology, 1084
costs, 404
equipment, 1772
geoacoustic spectrum, 167
gradient determination on map of equal reflexion times, 858
gravity data, 347, 1781
gravimetric surveys, 1780
logging:
neutron, 511
velocity, 4, 348
marine areas, 322
porosity trend mapping, 166
rock magnetism, 21
salt domes, Gulf Coast, 147

Geophysical surveying (*contd.*):
seismic, 1229
circular slide rule 1401
continuous profiler, 1774
the Decatrack, 1779
diffractional waves survey, 1244
French equipment, 349
IFP seismic centre, 1402
instruments, 165
remote-controlled refraction method, 1102
stratigraphic interpretations, 857, 1101, 1776–7
" stub " crew operations, 1775
synthetic records, 352
velocity contrasts, 350, 1399
strata dip measurement, 353
streaming potential, 35, 859
world, 1535
Geophysics:
hydraulic effects in, 1103
vehicle utilization in, 168
Georgia, U.S.A.:
developments, 1093
exploration, 1574
Glycols, 295, 788
dehydration units, 1884
Guatemala, oil possibilities, 1241
Gulfining process, 1619
Gulf of Paria, Trinidad, developments, 1534

Hassi er Rmel gas field, 157, 1840
Heat engineering:
domestic heating, 656
heat transfer, 1877
measuring tube-wall temperature, 1891
Heat exchangers, 89, 761, 1595, 1877
Helicopters, in geological surveys, 1757
n-Heptane, isomerization, 1620
*cyclo*Hexane, by hydrogenation of C_6H_6, 771
*cyclo*Hexane, hydrochlorination, 603
n-Hexane, conduction and breakdown measurements, 790
Holland, *see under* The Netherlands
Horsehead Field, Arkansas, 374
Hybridization, effect on the bond energies of carbon–carbon single bonds, 437
Hydration, of olefins in aqueous sulphuric acid, 585
Hydraulic fluids, additives, 472
Hydraulics, pipeline application, 231
Hydriodic acid, for removal of nitrogen and metals from petroleum stocks, 782
Hydrocarbons:
analysis:
mass spectrometry, 1676
molecular sieve adsorption, 1334
structural, 939–40
aromatic:
effect of polycyclic hydrocarbons on polarographic max of copper, 605
fractional micro-sublimation technique, 610
polynuclear, in wax, 1329
chromatography:
gas, 457, 795, 1653, 1673
gas–liquid, 459, 1333, 1670
light:
analysis, 613, 795
enthalpy, 1486
sampling bombs, 1658
naphthenic:
cis–trans isomerization of decalin, 581
Hydrocarbons (*contd.*):
oxidation of, 255–6, 789
paraffins, ionization of *n*-paraffins, 115
radiation-induced oxidation, 1326
saturated, branching degree estimation, 595
specific heats, 841
thermodynamics, 143, 318, 847, 963
for town gas, 122
water in, 450, 609, 796
The Hydrocarbons Convention, Piacenza, 1959, 137
Hydrodesulphurization:
Gulf HDS process, 1163
Kerr-McGee's plant, Winnewood, 430
of sulphur compounds and olefins, 840
Hydrogenation:
of acetylene, 580
of cat cracker feedstocks, 1614
combined with cracking, 1615
of high-asphaltic petroleums and tars, 1615
of olefins with aromatics, 104
review (1959), 772
Hydrogen–oil systems, phase relations, 1173
Hydrogen peroxide from petroleum chemicals, 1914
Hydrogen sulphide:
detection in high-pressure gas wells, 1664
in coke-oven gas, 1333
in Polish natural gas, 1342
potentiometric titration, 1659
removal from natural gas, 784
Hydrotreating process, 1618
HyL sponge iron process, 808

IFP-RA3 test method, 641
Illinois developments, 504
India:
geology, 159
petroleum legislation, 1936
Inhibitors, oil oxidation, 436, 844
Installations:
Royston, 1295
water-separation equipment, 549
Institute of Petroleum:
methods:
IP 18/53, 443
IP 166/60T, 636
symposium:
flow properties of Admiralty fuel oils, 815, 1500–2, 1692–5
industrial chemistry of lower olefins, 1489
Instrumentation:
analysis, 1631
LACT, 111, 401, 1317
process control, 1631
refinery, 112, 114, 251, 1892
remote-control, 253
Instruments:
analysers:
chromatographic, 1166
GST-2 gas, 1251
bottom-hole pressure, 998
meters:
flow, 252, 560, 775, 1320, 1889
orifice, 109
Insulating oils:
cable oil tests, 612, 948, 1708–9
electrical behaviour, 1704, 1904–5
electrical stability, 1705
gassing tests, 1508, 1709
high conductivity phenomena, 1487
luminous spots phenomena, 127, 598
testing, 1666
Interfacial tension apparatus, 897
" Intergard " paint system, 749
Iran:
Alborz structure, 745
developments, 1029
petroleum legislation, 1228
Sarajeh field, 744, 1030
Iraqi Draft Agreement, 310
Isocracking process, 103, 769, 1158
Isomerate process, 1622
Isomerization:
cis–trans:
of decalin, 581
of dimethyl*cyclo*hexanes, 1169
of *n*-heptane, 1620
Isomerate process, 1622
Penex process, 1049
of primary *n*-alkyl free radicals, 260
review (1959), 779
Isoprene production, 785
Italy:
geology, 162, 345
natural gas, 1679
N Apennine Mountains, 346

Jamaica developments, 1242
Japan:
developments, 663, 921
Sea of Japan, 678, 1534
Jet fuel:
aluminium borohydride and JP-4, 831
cleanliness, by black box field method, 1899
corrosion of stainless steels, 1731
hazards, 1186, 1690
nuclear radiation effect, 1754
Joint ventures, in exploration and production, 647
Jumping Pound Field, Canada, 1027

Kansas:
developments, 1130
geology, 850, 1384
Lansing–Kansas City limestones, 153
Panhandle area, 149, 407, 739
Kentucky developments, 408, 500–1, 1577
Kerosine, decomposition of SO_2 raffinates, 1174
Kharg Island terminal, 558, 922
Kuwait developments, 1447

Lacq, France:
gravimetric survey, 1780
natural gas:
corrosion problems, 1719
marketing, 627
radio-electric well-control, 1442
treating, 1681–2
production methods, 1563
SNPA activities, 315
sulphur production, 494
Lake Erie developments, 1532
Legislation:
French Sahara, 1228
India, 1936
Iran, 1228
Libya, 1228, 1462
Spain, 316
Turkey, 1228
Le Havre terminal, France, 548
Libya:
developments, 18, 676, 920, 1461, 1935
geology, 1767
petroleum legislation, 1228, 1462
Zelten, 156, 746

Liquefied petroleum gas, 941
as engine fuel, 1063
evaporation properties, 809
octane numbers, 466
production, U.S.A., 1841
at sub-zero temp, 1497
underground storage, 86–7, 1297, 1435
utilization:
ceramics, 943
metallurgy, 942–3
in Yugoslavia, 1185
Liquid–liquid equilibria, glycol derivatives, 788
Lomax process, 1480
Louisiana, South:
Bay Sainte Elaine field, 329
developments, 1237, 1846–7
Miocene trend, 327
Sabine Lake, 1127
Salt domes, 328
Lubricants:
additives, 1065, 1192, 1902
anti-friction, 816
boundary, 275
for chemical plants, 1066
graphite, 1194, 1507
IAE gear tests, 636
launching, 126
review (1958), 276
synthetic:
aviation turbines, 1903
pipeline turbines, 79, 1588
watch bearings, 1344
Lubricating greases:
additives, 821
laboratory tests, 1663
Lubricating oils:
additives, 472, 821
detergent, 817
EP, 1192, 1506
synthetic, 1504
Zn DTP, 638
analysis, 266, 1214, 1345
carbon-type, 1490
ring analysis, 616, 792
spectrofluorimetry, 804
spectrographic, 824
structural groups, 452, 611
cutting, 1506
detergent, 817, 824, 1347
engine testing:
initiation of chemical reactions in, 1893
IP standard methods, 615
foaming characteristics, 634
hypoid gear, 277
multigrade, 637
VI improvers, 1698
for natural gas engines, 473
polychlorotrifluoroethylene, 1697
refining, with cresol, 278
surface-active agents in, 1060
testing, 265, 803
tractor, 279
viscosity, 274
viscosity index, 1172
viscosity–temperature characteristics, 1170
viscosity–temperature–pressure dependence, 264
Lubrication:
bearing, 946
boundary, 275, 818
film studies, 280, 1346, 1503
friction and wear studies, 818, 1064, 1194, 1491, 1505, 1652
hydrodynamic, 280, 282, 1346
review (1958), 276
Lubrication (*contd.*):
roller bearings, 1193
rolling friction, 281
wear, 1491

McMurray oil sands, Canada, 1441
Mali Federation, W Africa, 1770
Manganese determination in gasolines, 1176, 1331
Maryland developments, 1573
Materials engineering:
fluorine elastomers, 1070
glass reinforced epoxy pipe, 1733
low temperature piping, 1874
materials for anti-zero service, 653
synthetic foil in building, 1516
Mercaptans:
determination in naphthas, 1674
potentiometric titration, 1659
Mercury addition compounds, 1321
Merox process, 106, 583
Metals:
Illium 98, 826
low temp characteristics, 652
Methane:
aluminium tanks for transport, 1584
Methane Pioneer, 553, 750–2, 1861
solubility in water, 1641
transportation by sea, 226, 1138
Mexico:
developments, 545, 1287, 1459, 1582
Tehuantepec oil domes, 1098
Michigan:
developments, 11, 1133
Trenton-Black River, 1386, 1759
Middle East:
economic developments, 651
energy requirements, 834
geology, 1767
production, 918
reserves, 1767
Milford Haven terminal, 77
Mindanao, Pacific Ocean, oil possibilities, 1395
Mississippi:
developments, 215, 740
geology, 1383, 1525–6
Missouri developments, 1095
Molecular sieves in hydrocarbon type analysis, 1334
Monochloro*cyclo*hexane, catalytic dehydrochlorination, 603
Montana:
developments, 1848
Sweetgrass Arch, 507
Montecatini processes, 587
Motor fuels:
additives, 125, 821
for Italian cars, 1689
manganese determination in, 1176, 1331
octane numbers, 124, 467, 812, 1686, 1688–9
phosphorus determination, 1059
refinery studies, 1686
TEL in, 1189
TML in, 1687

Nalfining process, 105
Natural gas, 1498
adapting town gas appliances, 1183
automatic control, 1168
in California, 543
corrosion inhibitors for pipelines, 1725
drying, using silica gel and activated ammonia, 272
Natural gas (*contd.*):
flow equations, 1862
endothermal cracking, 1160
H_2S in Polish, 1342
H_2S removal by freezing, 784
Italy, 1679
Lacq, France, 627, 1442, 1681–2, 1719
Laverne gas-products plant, 1496
Leidy, Pennsylvania, 420
liquefaction, 806
Lussagnet, France, 1466
marketing, 627, 810
mass flow measurement, 560
in The Netherlands, 1184
in OEEC countries, 628
Okotoks field, Alberta, 1624
pipelines:
France, 554
U.S.A., 1585
U.S.S.R., 1144
potassium carbonate process, 1630
processing at low temperatures, 1898
reserves, 67
Sahara, 628
selective adsorption sweetening, 1881
underground storage, 224, 810, 927, 1466–7
U.S.A., 121, 271, 1022, 1467
exploration and production, 1126
gas–liquids production (1960), 1841
report (1943–1953), 120
U.S.S.R., 1372
volumetric behaviour of gases containing H_2S and CO_2, 1439
Natural gasoline:
absorber design, 1310, 1485
absorber economics, 1225, 1604
charcoal adsorption plants, 1316
gas chromatography in, 1180
plants, 1476, 1477
recovery, 429, 572, 1044, 1051, 1309–10, 1604
refrigeration, 1050–1
Rayne, Louisiana, 1883
Nebraska:
developments, 1527, 1760
Forest City Basin, 1454
N Hugoton, 1384
Lansing–Kansas City limestones, 153
The Netherlands:
exploration and production, 412
natural gas, 1184
petroleum industry, 488
New Mexico:
Abbo Reef, 1761
developments, 10, 1452, 1762, 1849
geology, 9, 152, 668
San Juan Basin, 1455
New York State:
exploratory drilling, 1129
geology, 146, 497
Nickel:
Illium 98, 826
in Polish crudes, 1138
Nitrogen compounds, selective acetylation and non-aqueous titration, 1661
Nitroparaffin derivatives, as anti-bacterial agents, 1210
Nitrous oxide, for pipeline leak detection, 928
Nozzle coking, 635
Nuclear energy, underground explosions, 62, 88, 298
Nuclear magnetic resonance:
of crude oils, 604
separation of C_8 aldehydes, 1333

Octane number, 124, 467
calculations, 812, 1688
for Italian automobiles, 1689
LPG, 466
spontaneous ignition of hydrocarbon–air mixtures, 800
Ohio, developments, 741, 1132
Oklahoma:
Cement pool, 969
SW Elville Field, 150, 330
geology, 671–2, 851
Kingfisher Co., 1131
Panhandle area, 149, 407, 739
Springer Sands, 331
Okotoks field, Alberta, 1624
Oldershaw plate column, 1053
Oregon geology, 508, 1531
Organometallic compounds for petroleum chemicals, 600, 950, 1643
Oxidation:
of hydrocarbons, 255–6, 789
of organic compounds, 355
of white oils, 436
Oxo process developments, 1629
OzoKerite, Polish, 1602
Ozonolysis in oil constitution research, 1642

Pakistan:
developments, 1393
Sui gas field, 342
Palæontology:
Inceramus, 145
Nanno fossils, NW Germany, 1771
organic microfossil studies, 3
ostracods, Paris Basin, 161
U.S.S.R. methods, 1379
Palynology, 1085, 1376
Meaux region, Seine-et-Marne, France, 160
Panhandle area, U.S.A., 149, 407, 739, 1380
Papua developments, 1463
Penex process, 1049
Pennsylvania:
developments, 148, 214, 1092
natural gas, underground storage, 420
Pentane:
ethylidene*cyclo*pentane, synthesis, 440
ethyl*cyclo*pentanes, synthesis, 440
Persian Gulf:
developments, 853, 919, 1534
weather forecasting system, 1853
Petroleum acids:
boiling temp, 791
from Matzen crude oils, 1716
Petroleum chemicals, 293, 1352, 1712–13
Australia, 1205
Brazil, 1934
effluent treatment, 98
Fauser-Montecatini processes, 587
France, 294
The Netherlands, 475
organometallic compounds, 600, 950
Oxo process, 1629
process engineering, 1369
process handbook, 819
production, 1710, 1910
resins, 289
thermal cracking, 764
Petroleum coke, 1482
Petroleum concessions, 309
Petroleum geology:
Amarillo–Hugoton area, U.S.A., 323–4
N Apennine Mountains, Italy, 346
application to depletion of properties, 1233
SW Aquitaine, France, 1396
Petroleum geology (*contd.*):
Bay Sainte Elaine field, S Louisiana, 329
bioherm analysis, Williston Basin, 968
British Columbia, 1763–4
W Canada Basin, 1389
Canadian Arctic, 15–16, 1765
N Carolina–S Carolina coastal plain, 1091, 1524
Cement pool, Oklahoma, 969
Central Mid-Continent, U.S.A., 333
clay sedimentology, 2
co-ordination with geophysics, 1084
Cretaceous rocks, N Alaska, 1096
Cretaceous rocks, E Puerto Rico, 972
S Dakota, 503, 1094
Dukla–Michowa fold, Poland, 1397
East Mississippi Delta foraminifera, 6–7
Edwards limestone, S Texas, 1381
SW Enville, Oklahoma, 150, 330
evaluation of aerated water-drilled wells, 1232
Four Corners region, U.S.A., 12
Garlin and Clermont structures, France, 856
gravity-photogeology method, 1086
Green River Basin, Wyoming, 1388
Gulf Coast salt domes, 147
NW Hartburg field, Texas, 1236
Hassi er Rmel gas field, 157
helicopter surveys, 1757
hydrodynamic studies, 144
impsonite, 682
India, 159
S Italy, 162, 345
Jackson–Eocene strata, S-Central Texas, 325
Jurassic and Cretaceous strata, Sacramento Valley, California, 509
Kanab region, Utah–Arizona, 1530
Kansas–Nebraska, 1384
Lansing–Kansas City limestones, 153
Lopeno trend, S Texas, 1382
Love County, Oklahoma, 851
Lubaczów, Poland, 163
magnetic orientation of cores, 1082
S Manitoba, 337
Marietta syncline, Oklahoma, 671–2
Menilite series and Krosno beds, Poland, 1398
Mexia–Talco fault line, Texas, 1090
migration and evolution of crudes, 1377, 1522
migration of oil in water–wet carbonate rocks, 965
Miocene trend, S Louisiana, 327
Mississippi salt basin, 1383
E Mississippi Delta, 1235
Modelo formation, Los Angeles, California, 1239
montages, 1375
Montoya Ordovician, Trans-Pecos, Texas, 326
New Mexico, 152
New York State, 146
Niobrara, Wyoming–Colorado, 151
North Yukon–Lower MacKenzie, Canada, 336
S Oklahoma, Springer sands, 331
origin of petroleum, 1, 1234
palæosalinity, 1088
Panhandle–Hugoton area, U.S.A., 1380
Paris Basin, 855
photogeology, 967
Portuguese Timor, 158
preservation of chlorophyll, 320
salt domes, S Louisiana, 328
Petroleum geology (*contd.*):
Seviar Arch, Utah, 335
South America, 338
Spain, 20
stratigraphic traps, 496
submarine areas, 322
subsurface chemistry of ancient basins, 1087
Sui gas field, Pakistan, 342
Swan Hills, Alberta, 971
tertiary stratigraphy, Utah, 1387
E Texas, 966
S-Central Texas Coastal Plain, 1089
Trenton–Black River, Michigan, 1386, 1759
Turkey, 155
Upper Devonian strata, Oberharz, Germany, 682
Utah, 13
Vidoño shale, Puerto la Cruz, Venezuela, 1392
Virginia, 1523
Warrior Basin, Mississippi–Alabama, 1525
Weyburn field, Saskatchewan, 852
White Mesa field, Utah, 334
Williston Basin, N Dakota, 502
Wind River Basin, Wyoming, 154
Zechstein dolomites, Emsland, Germany–Holland, 344
Petroleum industry:
Europe, 1933
instrumentation, remote-control, 253
international oil development, 1571
reduction of paper work, 1925
Saharan problems, 312
second century outlook, 136
telecommunications, 962
Phase equilibria, for systems *cyclo*hexane, *n*-heptane, and aniline, 1055
Phase relations of hydrogen–oil systems, 1173
Philippines:
developments, 1243
geology, 19
oil possibilities, 343
Phosphates, micro-gas chromatography of, 1672
Phosphorus, determination in gasolines, 1059
Physical chemistry, droplet circulation and interfacial disturbances in gas–liquid systems, 257
Pipelines:
Angle Bay–Llandarcy, 236
automatic control, 556, 1036
boring machine, 1869
buried, corrosion, 1720, 1916
cased crossings, 1468
cathodic protection, 1074, 1206, 1209, 1211–13, 1724, 1735, 1915
cleaning, 1034, 1299, 1469
coatings, 1074, 1356
coal tar, 1736
enamel, 1359
hot applied, 1722
internal 1298, 1470, 1865
plastic, 1469
compressors, 1594
centrifugal, 1039
reciprocating, 563
stations, 1301
construction, 418, 1300
computer applications, 113, 561, 1484, 1591, 1593
design, 1035
developments, 1869
economics, 1037

Pipelines (*contd.*):
electronic engine analyser, 479
W Europe, 1589, 1871
flow equation, 559
gas flow:
computers in, 1165
radioactive tracers, 230
gravitometer for automatic delivery, 1638
heated crude line, Venezuela, 233
hydraulic systems, 231
Kharg Island, 558
leak detection, 928, 1033, 1863
London Airport, 1038
low temp piping materials, 1874
multiphase flow, 422
natural gas, 554, 1144, 1585
oil hose, 1875
orifice-plate bending, 555
polyethylene, 1302, 1513, 1592
pressure-surge tests, 1471, 1874
propane, 931
pumping:
gas turbines, 227
pumps, 83
stations, 419, 421, 1586–7, 1888
Rotterdam–Rhine, 78, 417, 557, 1871
rubber balls application, 229
Saharan, 1872
scrapers:
trap design, 1864
variable diameter, 1868
spiral welded pipe, 1140, 1142
stress-analysis, 1139
sulphur line, Louisiana, 81
techniques, 1869
tellurometer for surveys, 140
Trans-Alpine, 235
two-phase flow, 416
U.K., costs, 1870
U.S.S.R., 564
welded transition-taper joints, 228
welding, 562
API 5LX-52 pipe, 234
pressure, 1867
X-ray testing, 930
XPF pipeline, Argentina, 1143
X-56 pipe, 232, 1141
Pipes:
flow rate in, 381
glass reinforced epoxy oilfield, 1733
Plastics, 299, 308
evaporation losses from tanks, 925
industrial adhesives, 1517
Poland:
crude oil refining, 1306
exploration, 1244–5
geology, 163, 1397–8
marketing and production, 1367
petroleum industry, 1289, 1465
refining industry, 1305, 1307
sulphur deposit, 1279
Upper Silesia coal basin, 164
Pollution:
air, 319, 470–1
in petroleum industry, 142
from power plants, 1217
river, 1042
sea, 490
Polyethylene, 1170, 1327, 1488
pipelines, 1302, 1513, 1592
Poly*iso*propylbenzenes, transalkylation with benzene and cumene, 1322
Polymerization:
acetylene, 1161
ethylene by γ-radiation, 774
operating costs, 311
review (1959), 973
stereospecific, 1643
Polymers:
acrylonitrile-methylvinylpyridine, 117
ethylene–propylene copolymers, 937
polymeric coal-model materials, 1353
Polymethylene, 1170
Polypropylene, determination of mol wt, 599
Polytetrafluoroethylene dry bearings, 1360
Porphyrins, aggregates in residues and bitumens, 639
Potassium, determination in oilfield brines, 442
Potassium carbonate process, for natural gas, 1630
Pottermeter, de Havilland, 1320
Pressure and temperature, in separation of solids in petroleum, 1669
Production equipment:
ammonia absorption refrigeration, 1011
automatic control, 991
corrosion control, 372
dehydrators:
calcium chloride, 909
glycol, 1012, 1884
long cycle dessicant, 908
short dessicant, 1010
flow stations, 207, 403
gas lift systems, 1811
indirect line heater, 1031
LACT instrumentation, 111, 401, 1317
leasing, 373
separators, 701
low temp, 700
three-phase, 1277
vapour recovery system, 910
Production of petroleum:
acidization, 50, 517, 996–7
artificial lift, 726, 1266
automatic well-control, 929
bacteriology of injection water, 51
bottom-hole heating, 396
bottom-hole pressures, 492, 998
CO_2 reduces oil viscosity, 912
casing, cathodic protection, 906, 1726, 1732
clay cement method, 1812
cleaning, 712, 713
completion methods, 54
concentric, 898
dual, tandem rod pumps, 1445
high pressure gas wells, Lacq, 1563
multiple, 56, 397
in Paradox Basin, 537
permanent, 879
slim hole, 1555
sour gas wells, 529
quintuple string wells, 1425, 1827
sextuple, 1833
cores:
examination, 708, 714, 899, 1005
resistivity measurements, 1556
coring, percussion sidewall, 377
corrosion:
downhole, 1278, 1729
laboratory studies, 1728
tubing caliper surveys, 1727
in water flooding, 1734
costs, 376
crude treating costs, 1809
cycling projects, 190
depth records, U.S.A., 1026
developments, 990
diffusivity equation, 1117
displacement mechanism, 201
down-hole pump, 1114
equalization studies by diffusion, 1683
Production of petroleum (*contd.*):
evaluation of reserves, 1115
at 50,000 ft, 913
films at crude oil–water interfaces, 993
fire-drive, 187
foaming agents, 389, 1270
formation damage, 518
fracturing, *see under* Recovery
free-piston tubing pumps, 205, 395
gas anchor-mud anchor systems, 1810
gas condensate wells, 392, 463, 721, 848, 1449, 1683
gas drive projects, 387, 702, 704, 914, 1116, 1274
gas lift, 57, 375, 540, 703, 885, 992, 1446, 1811
gas storage aquifiers, 394
Hassi Messaoud field, 1427, 1768
implosions techniques, 981, 1119
improved Buckley–Leverett theory, 717
inflatable packers, 903
inhibitor squeeze treatment, 203
injection, 1000
butane, 1001
gas, 191, 1121, 1275, 1431
LPG, 541
water, 51, 58, 881, 882
interfacial tension apparatus, 897
LACT (Lease Automatic Custody Transfer), 111, 385, 401, 1317, 1426, 1433
logging, 1006, 1570
density, 904
electric, 64, 1830, 1832
fissure vol calculations, 64
induction, 1823
neutron, 1007, 1856
nuclear magnetism (NML), 1829
sonic, 1008, 1794, 1823
McMurray oil sands, 1441
minimum rate of flow tests, 1002
oilfield development, 69, 1126
costs, 1284
pendant drop apparatus, 897
perforating, 878
" bullet-free," 1271
multiple tubingless completions, 1815
new bonded particle liner, 1423
special liners for shaped charges, 1424
permeability:
of Athabasca oil sands, 1440
of cores containing clays, 1118
Marshall's formula, 1276
variation on flood recovery, 383
viscosity ratio effect, 905
petroleum engineering, computer application, 198
plunger pipe drive, 1558
porosity:
acoustic velocity, 709
from sonic and neutron logs, 1813
pressure profiles, 711
production:
from frozen reservoir rocks, 893
methods, 405
proration, 1282–3, 1421
pumping, 186
chemical inhibitors for plant, 1123
deep well methods, 1268
dual completion units, 1806
failures, 720
foundations for units, 1803
high-volume, 1804
hydraulic, 206, 1120
installations in ultra-slim casings, 1281

Production of petroleum, pumping (*contd.*):
load measurement, 1819, 1822
power for units, 1807
slippage in subsurface pumps, 1267
sucker rods, 1269, 1432, 1553, 1802, 1805, 1819
tandem rods, 1562
in ultra-slim casings, 1831
recovery:
alcohol slug process, 1437
clay mineralogy, 896, 1280
developments, 1113
fracturing, 390, 1543
sand movement, 527, 890
sonic, 542
with water base fluids, 1265
gravity drainage, 994
of heavy crudes, 55
hydraulic fracturing, 211, 707, 732, 1273, 1438
reverse combustion, 1824–5, 1834–5
thermal, 894
in situ combustion, 379, 1912
heat conduction, 192, 197
underground nuclear explosions, 62
water-driven CO_2 process, 380
Regie Autonome des Pétroles, PVT laboratory, 1565
reservoirs:
analysis, 715, 1568–9
Aneth field, Utah, 895
Bolivar field, Venezuela, 1275
bottom-water coning, 384
bottom-water and edge-water effects, 999
bottom-water sealing, 1818
capillary and gravity problems, 194
capillary pressures, 1420, 1436
characteristics method, 715
condensate:
injection, 882
S McCallum field, Colorado, 1444
phase behaviour, 528
phase relations of hydrocarbons, 53
deposit investigation, 202
equilibrium calculations, 724
fire spot *v.* crestal water flood patterns, 1836
fluid migration, 391
gas flow, 875, 1434
gas–oil ratio, 199
gas pressures, 200
Hassi er Rmel natural gas, 1840
inhomogeneity control, 5
laboratory studies, 536
detergent flooding, 716
flow potential in pattern flooding, 900
gas-phase saturation, 263
immiscible displacement, 723
liquid–liquid displacement, 530
linear displacement, 532, 719
pilot water flooding, 892
pressure effects, 393
pressure maintenance, 907
production-injection well conversion, 1816
three-component saturation, 531
transient pressure distributions, 889, 902
unsteady flow in fissured porous medium, 876
wettability effects of crude oil, 888
Jumping Pound field, 1027
Lussagnet, France, 1564
Maihak instruments, 200, 733
material balance, 65, 189
Production of petroleum, reservoirs (*contd.*):
miscible displacement studies, 49, 61, 1272, 1559, 1820–1
miscible slug drive, 1422
non-linear porous system, 526
Palæozoic, S.C.P., 386
Parentis, France, 877, 901
pressure build-up analyses, 50, 63, 534, 704, 1443
pressure maintenance, 398, 533, 891, 901, 907
radioactive tracers, 204
solubility-viscosity tests, 884
solution gas-drive, 195
two-phase fluid flow, 705, 1419, 1826
unsteady-state liquid flow, 863
volumetric water invasion efficiency, 384
water-drive, 68, 85, 388, 525
water-flooded, 209, 1820
water influx pressure calculations, 535
wettability, 196, 378, 710, 886
reverse combustion, 1824–5, 1834–5
scale deposits minimization, 48
secondary recovery, 1857
carbon dioxide flooding, 730
digital computer application, 1560
fire flood, 1430
fluid injection, 60
gas injection and water flooding, 748
miscible phase displacement, 185, 1003
operations in Pennsylvania, 1837
Slaughter field, Texas, 1838
sedimentation basins, 382
stimulation treatment, 208, 1554
stress in tubular materials, 867
submarine areas, 322
tubing caliper surveys, 1727
unitization, 706
value of oil properties, 538
viscosity reduction by CO_2, 912
water block study, 995
water flooding, 731
California practices, 1566
corrosion in, 1015, 1734
curtailment, 1567
Dominguez field plant, 1429
Lawrence County, Illinois, 911
peripheral, 1431
pilot, 892, 1014
Spraberry reservoirs, 400, 1839
water preparation, 210, 399
Wilmington field, California, 1817
well density control, 1450, 1547
well spacing, 188, 374, 880, 1282
well treatment, 712, 713, 722
wetting tendencies of crude oil, 59
Weyburn field, Saskatchewan, 915
workover techniques, 1561
Propane:
autothermal cracking, 577
cyclic reforming, 575–6, 578
evaporation properties, 809
solubility in water, 1054
transportation by pipeline, 931
*iso*Propanol/1:4-dioxan, liquid–vapour equilibrium, 1654
Propylene:
alkylation, 776, 777
demethanizing of mixed gases, 807
industrial uses, 1489
production, 1714
Puerto Miranda terminal, 225
Puerto Rico geology, 972
Pumpability:
Admiralty fuel oils, 815, 1500–2
waxy crude oils, 1677
Radiation chemistry, 108
of C_6H_6 containing O_2, 262
Geneva Conference, 660
oxidation of olefinic and saturated hydrocarbons, 1326
Radioactive tracers:
for entrainment of vacuum-still bottoms, 591, 786
flow rates in pipes, 381
IFP-RA3 engine test, 1668
oil consumption in diesel engines, 80
Radioactivity, tests of waters and gases, 268
Radioisotopes, non-destructive testing, 1667
Raudhatain field, Kuwait, 1447
Reactors:
design, chemical kinetics, 258
for first order equilibrium reactions, 603
Refineries:
BP's Montreal, 1304
Eastern Hemisphere, 649
Esso's Bordeaux, 1879
Esso's Milford Haven, 95, 317
European, 306
Great Britain (1959), 426
Lincolnshire Chemical's benzole, 434
manpower requirements, 134
Polish, 1305
Whitegate, Eire, 238
Refinery equipment:
electro-magnetic valves, 1887
electronic control panels, 254
instrumentation, 112, 114
lighting systems, 1149
Refinery plant, 1595
air coolers, 933
aluminium in, 758, 1150
boilers, 239, 424, 1040
cleaning, 1147
compressors, 759, 1148
condensers, 1723
cooling systems, 91, 757, 1041, 1043, 1878
corrosion control, 1723
corrosion inhibitors, 1511–12
cyclones, 93
de-ethanizer, 428
distillation plant, 760, 1155
flares, 90, 1876
furnaces, 756, 1595, 1926
gas turbines, 96, 1474
gear pumps, 92
heat exchangers, 89, 761, 1595, 1877
inspection, 1423, 1475
instrumentation, 112, 114, 251, 1892
*iso*polyester applications, 1597
layout, 1303
pipes, 241, 753, 1145, 1595, 1928, 1930
power generation, 423, 568
pressure vessels, 1595, 1929
preventive maintenance, 569
pumps, 567
reactors, 756
start-up and shut-down, 1472, 1478–9
steam traps, 932
steels, low temp, 1146
towers, 1479
Refinery waste:
acid sludge disposal, 1162, 1598
activated sludge process, 565
biological treatment, 242

Refinery waste (*contd.*):
gaseous effluents, 99
Humble plant, Baytown, 97, 243
river pollution, 1042
waste-water aeration, 425, 755
Refining:
amine treating, 432
cresol refining of lubricating oils, 278
digital blending system, 1890
electrical probes, 1510
furfural extraction, 936
Gulf HDS process, 1163, 1619
hydriodic treating, 1618
H_2S removal from tail gas, 431
hydrogen treating, 1618
integration of processes, 307
linear programming, 1886
Lomax process, 1480
Merox process, 106
of Middle East crudes, 1596
Nalfining process, 105
process flow calculations, 1886
waste heat recovery by catalytic oxidation, 584
Regie Autonome des Pétroles, PVT laboratory, 1565
Reid vapour pressure and micro vapour pressure, 846
Resins, petroleum, 289, 308
Rimbey gas plant, Canada, 1885
Rincon Island field, California, 24
Rocket propellants, 259
Rocky Mountains:
developments, 409, 505, 742
geology, 673
Rubber, synthetic, 1718

Safety precautions:
detonative explosions, 481–2
diesel oil injection injuries, 1918
during refinery turnarounds, 305
extinction of running oil fires, 483
fire fighting developments, 644
fire prevention in petroleum industry, 643
petrol-vapour poisoning, 1363
pressure resuscitator, 132
sampling bombs for light hydrocarbons, 1658
static electricity, 955
Sahara, 1227, 1461
crude for diesel engines, 632
developments, 960, 1373
exploration, 218
geology, 1767
Hassi Messaoud, 1768
marketing, 650
natural gas, 628
petroleum legislation, 1228
problems of petroleum industry, 312
reserves, 1767
Spanish, 1854
Sampling techniques, application to collection of economic data, 645
Sarajeh field, Iran, 744
Scandinavia petroleum industry, 1749
Schiebenhard field, France, 73
Separation methods:
centrifugal purification of oils, 947
continuous gas counterflow, 629
of solids from fluids in cyclones, 93
of solids in petroleums, 1669
Shale oil recovery by nuclear explosions, 298
Silicones, automobile applications, 128, 1913
Soldotna, Alaska, 1391
Solubilization with amphiphilic compounds, 1649
Solvent dewaxing:
analogue computer for, 1319
MEK, 246
area, 250, 1157
Solvent extraction:
improvement of catalytic feeds, 1605
of low temperature tar, 1623
multi-stage, 1607
process economics, 1606
Udex unit, 1045
review, 1608
Solvents:
compressed hydrocarbon gases as, 1882
flammability ranges, 1362
Fluor solvent CO_2-removal process, 1495
high-boiling, high-aromatic, 1202
Sulpholane, 781
South America:
developments, 917
oil possibilities, 17, 338, 546
refining capacity, 1154
Spain:
geology, 20
petroleum legislation, 316, 1228
Spanish Sahara, exploration, 1854
Spectrometry:
infra-red:
of chemisorbed molecules, 1650
of crude oils, 116
of ethyl*cyclo*pentenes, methylene- and ethylidene*cyclo*pentane, 440
separation of C_8 aldehydes, 1333
mass:
of C_{12}–C_{20} hydrocarbons, 118
in hydrocarbon analysis, 1676
of mercaptans in naphthas, 1674
spinning electrode in, 1494
ultra-red, and gas chromatography, 1640
X-ray:
fluorescent, 451, 617
Standardization flowmeters, 252,
Static electricity, 955
Stearic acid adsorption from solution, 438
Steels:
ASTM A426-58T pipes, 662
growth of sulphide films, 1894
HyL sponge iron process, 808
low temp-characteristics, 652, 1146
rustproof, 303
Stereochemistry, in heterogeneous catalysis, 1648
Storage:
salt domes:
for offshore oil, 84
for atomic reactor fuel waste, 923
underground, 86–8, 1297
natural gas, 224, 810, 927, 1466, 1467, 1528
Sulfinusation process, 1325
Sulpholane, 781
Sulphur:
deposits in Poland, 1279
Lacq production, 494
pipeline, Louisiana, 81
Sulphur dioxide in flue gases, 799
Sulphur trioxide in flue gases, 799
Sumatra developments, 1288
Surface active agents:
anionic, from heavy petroleum oils, 1711
non-ionic:
determination in oils and solvent extracts from wool, 1060
from heavy petroleum oils, 1711
ICOX 58, 1314
Surface chemistry:
interfacial films of water-in-crude emulsions, 1328
water-in-oil emulsions, 794
Synthesis:
alkylbenzenes of hydrocarbons C_{14}–C_{12}, 780

Taft's constants σ^*, calculation of, 596
Tanganyika aerial survey, 677
Tank cars, 552, 1292–4, 1859
Tankers:
cathodic protection, 1031, 1208
construction, 413
launchings (1959), 1291
supply and demand, 550
world tanker fleet (1959), 75–6, 551, 1224
world tanker fleet (1960), 1744
Tanks, 223
capacity, 1858
density determination, 1639
evaporation losses, 924–6, 1296, 1860
heat losses, 74
plastic for corroded tank bottoms, 1931
Tar:
solvent refining of low temperature, 1623
from U.S.A. seam coal, 1753
Wietze field, Germany, 220–1
Tar oils:
diesel oils from, 433
urea extraction, 1311, 1315
Telecommunications in petroleum industry, 962
Tellurometers for pipeline surveys, 140
Tennessee developments, 1576
Terminals:
Kharg Island, 922
Le Havre, 548
Milford Haven, 77
Puerto Miranda, Lake Maracaibo, 225
Tranmere, 414, 1583
Tetraethyl lead:
determination of hexadiethyl lead, 444
in U.S. gasolines, 1189
Tetramethyl lead, 1687
Texaco synthesis gas process, 1616
Texas, Central, geology, 8
East:
Cotton Valley, 966
developments, 1755
Montoya group, Trans-Pecos, 326
NW Hartburg field, 1236
Panhandle area, 739
South:
Edwards trend, 849, 1382
geology, 325, 1089
Lopeno trend, 1382
West:
developments, 1452
Thermodynamics of hydrocarbons, 143, 318, 847, 963
Timor, Portuguese, geology, 158
Tobacco, high mol wt cyclic paraffins in leaves, 1645
Toluene alkylation, 778
Town gas, 119, 122, 465, 1680, 1684–5
Tranmere oil terminal, 414, 1583
Transformer oils:
dielectric properties, 1706, 1905
flash distillation, 1313
mobil cleaning plant, 949
moisture effect on electrical properties, 1073
passivated, 1908
preservation systems and problems, 1909

Transportation, 1290
  methane, 226, 553, 750–2, 1138, 1861
  movable LPG unloading dock, 1032
Trichloroethylene, 1204
Trinidad developments, 916
Tugs, fire-fighting, 644
Turkey:
  geology, 155
  petroleum legislation, 1228

Unicracking process, 1312
United Arab Republic, 1748
U.K.:
  consumption, 486, 832, 1745
  imports (1959), 485, 1078, 1221
  liquefied petroleum gases, 941
  petroleum statistics (1958), 133
U.S.A.:
  crude oil production, 728, 1023, 1842
  developments (1959), 659
  drilling, 685–6, 738
    depths, 1024
    Eastern areas, 406, 737
  energy requirements, 565
  exploration, 738, 1017
  forecasts, 959
  mid-year report, 1919
  natural gas, 120–1, 271, 1022, 1467, 1585
  new oil and gas fields, 1020
  refinery construction, 1153
  refining capacity, 833, 1151
  reserves, 729, 1018–19, 1124, 1285–6, 1572, 1920, 1924
  supply and demand (1960), 1021
U.S.S.R.:
  crude oil production, 1125
  energy requirements, 1365
  exports, 487, 1366
  marketing, 1746
  natural gas, 1372
  pipelines, 564, 1144
  visit of French chemical industry mission, 1751
Urea:
  dewaxing, 250, 1157
  Japanese process, 1628
  tar oil extraction, 1311, 1315
Utah:
  Aneth field, 895
  Brazar dolomite, 506
  developments, 736
  geology, 13, 1387, 1530
  NW Lisbon field, 1529
  Soviet arch, 335
  White Mesa field, 334

Vanadium:
  oxidation by vanadium pentoxide, 302
  in Polish crudes, 1338
Vapour–liquid equilibria:
  from gas chromatography data, 1062
  for hydrocarbons, 594
Vapour pressure:
  micro method, 1056
  v. R.V.P., 846
Vaseline oil, photochemical oxidation, 1651
Venezuela:
  energy requirements, 834
  exploration, 71
  geology, 1392
Virginia:
  asphalt from well, 1238
  developments, 1385, 1575, 1577
  geology, 1523
Viscometers, 1896
  capillary, 1058, 1492
  Charron type, 802
  high pressure capillary tube, 449
Viscosity:
  coal tar product, 805, 1351
  index, 1172
  measurement, 1896
  temperature and pressure dependence, 264
Viscosity temperature characteristics, of lubricating oils, 1171
Volume, specific volume of liquids at high pressures and temperatures, 606

Water in hydrocarbons, 450, 609, 796
Water-in-oil emulsions, 794, 1328
Water separators, 549
Wax:
  Atlantic's Philadelphia plant, 1927
  candle making, 292
  hydrocarbon:
    polynuclear aromatics in, 1329
    spectroscopy, 451
Wear: *See under* Lubrication, Friction, and Wear Studies
Welding:
  AP15LX-52 pipe, 234
  of chrome steels, 1750
  with low hydrogen electrodes, 562
  pressure of pipelines, 1867
  X-56 pipe, 139, 232
  X-ray testing, 930
Wietze field, Germany, 220–1
Wildcats:
  U.S.A., 1025
  world, 213, 1845
World consumption, 734
  demand (1959), 213
  demand (1960–1970), 648
  drilling, 70
  forecasts, 959
  petroleum industry (1958), 484
  petroleum industry (1959), 493, 1923
  petroleum statistics, 646, 835
  production of oil and gas, 727, 735, 1016, 1843–4
World Petroleum Congress, 5th, 1959, 138, 836, 957–8, 1081
Wyoming:
  Beaver Creek, Madison, 1000
  Green River Basin, 216, 1388, 1457
  Niobrara field, 151
  Powder River Basin, 1456
  Wind River Basin, 154

Xylenols, alkyl derivatives, 1644

Yugoslavia:
  geology, 1099
  liquefied petroleum gas, 1185
Yukon developments, 1851

Zelten field, Libya, 156, 746

BOOKS REVIEWED

Numbers refer to pages

ASTM Manual for Rating Motor Fuels by Motor and Research Methods, 264A
ASTM Standards on Petroleum Products and Lubricants, 46A
Additives for Lube Oil. A Study of the Market, Science Information Associates, 172A
Ambassador for Oil, John Rowland and Basil, Second Baron Cadman, 171A
American Petroleum Institute, The Story of the, Leonard M. Fanning, 264A
American Petroleum Refining, Fourth Edition, H. S. Bell, 44A
Analyst's Pocket Book, J. R. Majer, 153A
Annual Reports on the Progress of Chemistry for 1958, The Chemical Society, 118A
Applied Hydrodynamics, H. R. Vallentine, 118A
Applied Petroleum Reservoir Engineering, B. C. Craft and M. F. Hawkins, 152A
Atomic Radiation and Polymers, A. Charlesby, 212A
Benzole and Allied Products, Standard Specifications for, The National Benzole and Allied Products Association, 265A
Benzole Technology, Review of, 1958, National Benzole and Allied Products Association, 94A
Brimstone: The Stone That Burns, William Haynes, 118A
Bulk Quantity Measurement, Symposium on, ASTM, 118A
Cathodic Protection, John H. Morgan, 117A
Century of Oil and Gas in Books, A, E. B. Swanson, 264A
Chemical Engineering Economics. Fourth Edition, Chaplin Tyler and C. H. Winter, Jr, 19A
Chemical Engineering Practice. Vol. 6. Fluid Systems, 2, Ed. Herbert W. Cremer and Trefor Davies, 43A
Chemical Engineering Projects, The Organization of, Ed. J. M. Pirie, 191A
Chemical Kinetics, The Foundations of, S. W. W. Benson, 190A
Chemical Process Systems, Continuous Analysis of, Sidney Siggia, 43A
Chemical Technology of Petroleum, 3rd edn., William A. Gruse and Donald R. Stevens, 189A
Clays and Clay Minerals, Ed. Ada Swineford, 242A
Congrès International des Machines á Combustion, Machienenbau-Verlag GmbH, 264A
Corrosion of Chemical Apparatus, G. L. Shvartz and M. M. Kristal, 117A
Fuels and Lubricants, Milosh Popovich and Carl Hering, 70A
Gas Chromatography, 2nd edn., A. I. M. Keulemans, 43A
Gas Chromatography Abstracts 1958, Ed. C. E. H. Knapman and C. G. Scott, 192A
Gas Chromatography, Principles and Practice of, Ed. Robert L. Pecsok, 71A
Geochemical Methods of Prospecting and Exploration for Petroleum and Natural Gas, A. A. Kartsev, Z. A. Tabasaranskii, M. I. Subbota, and and G. A. Mogilevskii, 42A
Ground Water Hydrology, David K. Todd, 70A
Industrial Carcinogens, R. E. Eckardt, 45A
Instrument Manual, The, Ed. J. T. Miller, 153A
Instrumentation and Computation in Process Development and Plant Design, Proceedings of the Joint Symposium on, Institution of Chemical Engineers, 171A
Liquids and Liquid Mixtures, J. S. Rowlinson, 18A
Marine Lubrication, G. H. Clark, 153A
Mass Spectrometry, Advances in, J. D. Waldron, 136A
Mass Transfer Between Phases, T. K. Sherwood, 44A
Natural Resources, Ed. Martin R. Huberty and Warren L. Flock, 19A
Oil and State in the Middle East, George Lenczowski, 212A
Oil Depletion Issue, The, John H. Lichtblau and Dillard P. Spriggs, 45A
Oil Is Where They Find It, Edward Ward, 118A
Oil Man, Eric Leyland, 118A
Oil on Stream!, John L. Loos, 171A
Overvoltage Research and Geophysical Applications, Ed. James R. Wait, 136A
Particle Size Measurement, Symposium on, ASTM, 118A
Pétrole Français, B. Pierre, 242A
Petroleum Geology, Kenneth K. Landes, 152A
Petroleum Geology, Principles of, 2nd edn, William L. Russell, 212A
Petroleum Processing, R. J. Hengstebeck, 93A
Petroleum Products Handbook, Ed. Virgil B. Guthrie, 190A
Petroleum Refinery Manual, Henry Martyn Noel, 44A
Petrology, Igneous and Metamorphic, 2nd edn., F. J. Turner and J. Verhoogen, 212A
Photo-Oxidation of Hydrocarbons in Mixtures Containing Oxides of Nitrogen and Sulphur Dioxide, E. A. Schuck and G. J. Doyle, 94A
Quantitative Molecular Spectroscopy and Gas Emissivities, S. S. Penner, 190A
Railroad Materials and Lubricating Oils, Symposiums on, ASTM, 118A
Rheology of Disperse Systems, Ed. C. C. Mill, 19A
SAE Handbook, 1960, Society of Automotive Engineers, 153A
Sixth Technical Progress Report of the Air Pollution Foundation, W. L. Faith and N. A. Renzetti, 153A
Spectro-chemical Analysis, Index to the Literature on, Part IV, 1951–1955, B. F. Scribner and W. R. Meggers, 118A
Tanker Directory of the World, 1960, Ed. Leonard G. Fay, 191A
They Struck Oil, Hildegard Dolson, 153A
Toxic Substances in Air, Methods for the Determination of, International Union of Pure and Applied Chemistry, 153A
UOP Laboratory Test Methods for Petroleum and its Products, 4th edn., Ed. J. P. Thornton, 153A